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The Biden doctrine and its flaws



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DELIVERING FOR AMERICA

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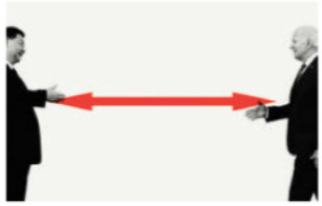
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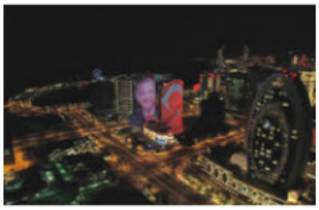
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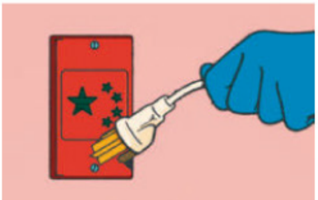
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Turkey's presidential election will head to a run-off on May 28th, after Recep Tayyip Erdogan, the incumbent, fell just shy of 50% in the first round of voting. Kemal Kilicdaroglu, the candidate of an opposition alliance of six parties, got 45%. Mr Kilicdaroglu may now struggle to unseat Turkey's strongman, who has presided over rampant inflation. In a bad night for the opposition Mr Erdogan's Justice and Development (AK) party retained a comfortable majority in parliament.

On a wing and a prayer

Volodymyr Zelensky paid brief visits to Britain, France, Germany and Italy to drum up support for a "jets coalition". France said it would train **Ukrainian** pilots to use combat aircraft. Germany promised €2.7bn ($2.9bn) in military aid and is to build a tank-repair factory in Ukraine. Britain pledged more air-defence systems and Storm Shadow missiles, Ukraine's first long-range cruise weapons. Mr Zelensky also met Pope Francis in Rome.

Russia launched more intense waves of missile attacks against Ukraine. One assault was described by officials as being "exceptional in density". They said six hypersonic missiles had been shot down. Russia is increasing its bombardments ahead of an expected Ukrainian offensive.

A deal that allows Ukraine to **export grains** safely across the Black Sea was extended by two months. The deal was first brokered by Turkey and the UN last July. Russia had threatened to pull out. It agreed to the last-minute extension, but said its conditions for taking part are still unmet.

Gunmen opened fire on an **American embassy** convoy in Nigeria's Anambra state, killing two policemen and two Nigerian embassy employees. Nigerian authorities blamed the attack on a Biafran secessionist group.

A BBC investigation into **Nigeria's** presidential election in February uncovered significant discrepancies between the total number of votes cast at individual polling stations and the official results. The BBC's own count in Rivers state suggested that Peter Obi had the most votes; the official result declared the state was won by Bola Tinubu, the president-elect.

The commander of **South Africa's** army visited Russia to discuss military co-operation and how to improve the combat readiness of both countries' armies. The visit will further strain South Africa's relations with America after accusations that it had sent weapons and ammunition to Russia in breach of its stated position of neutrality.

A court in **Tunisia** sentenced Rached Ghannouchi, a prominent opposition politician, to a year in prison. Human-rights groups accused Kais Saied, the president, who has suspended parts of the constitution and assumed authoritarian powers, of trying to dismantle Mr Ghannouchi's Ennahda party.

The number of reported **executions** around the world increased sharply in 2022, after a big jump in the Middle East, according to Amnesty International, a human-rights group. Iran executed 576 people last year, up from 314 in 2021. Saudi Arabia put 196 people to death, up from 65. (China does not report how many it carries out.)

Ecuador's president, Guillermo Lasso, dissolved the opposition-controlled National Assembly and called elections, after he faced an impeachment trial over allegations regarding oil-shipping contracts, which he denies. Mr Lasso used a "mutual death" clause in the constitution to dissolve the assembly. His opponents insist his actions are illegal.

Pro-democracy parties trounced the military and royalist coalition in **Thailand's** parliamentary election. Move Forward, which is dominated by liberal activists, and Pheu Thai, the party of Thaksin Shinawatra, a former prime minister in exile, won the majority of seats. Forming a government will be difficult, however. The army has rigged the constitution in its favour to give it an advantage in appointing a prime minister.



In **Pakistan** 20,000 pro-government supporters held a rally outside the Supreme Court calling for the resignation of the chief justice. He had ordered the release of Imran Khan, finding that the arrest of the former prime minister on graft charges had been unlawful. The rally was backed by parties that removed Mr Khan from power last year, raising fears of violence between pro- and anti-Khan factions.

The opposition Congress party in **India** won an election in Karnataka, a southern state that includes the tech hub of Bangalore. Its victory was a rare sliver of good news for the party. It fared badly in local elections in Uttar Pradesh, India's most populous state.

At least one person died amid communal clashes in the Indian state of Maharashtra sparked by the release of **"The Kerala Story"**, a fictional film about three women who join Islamic State. The movie has found approval among leaders of the ruling Hindu-nationalist Bharatiya Janata Party, including the prime minister, Narendra Modi.

In America **Title 42**, a pandemic-era measure allowing for the swift removal of illegal migrants, ended on May 11th. There was little sign of a surge in crossings. Alejandro Mayorkas, America's home-land-security secretary, said there had actually been a 50% drop in crossings compared with the days before May 11th.

The FBI's investigation into **Donald Trump** and his alleged ties with Russia was sharply criticised in an official report. John Durham was appointed as a special counsel to review the case during the Trump administration. He accuses the FBI's investigation of being "seriously deficient" and relying on "uncorroborated intelligence".

Republicans in Congress stepped up negotiations with the White House to avoid a **default** on government debt. The Treasury reiterated that it would soon run out of money to pay the government's bills.

The governor of Montana signed a bill that bans **TikTok**. It is the first statewide prohibition of the platform, which is owned by a Chinese company. The ban comes into effect in January, but will face legal challenges on free-speech grounds before then.

No wokeism allowed

Ron DeSantis, **Florida's** governor, signed a bill that stops colleges in the state from spending money on diversity, equity and inclusion programmes. Critics said free speech on campus will be curtailed. "If you want to do things like gender ideology, go to Berkeley," retorted Mr DeSantis, who is reportedly on the verge of announcing his candidacy for president.

Elon Musk appointed Linda Yaccarino as chief executive of **Twitter**, five months after he said he would relinquish the role. Mr Musk took over the company last October. Ms Yaccarino comes from NBC-Universal, where she was in charge of advertising. Mr Musk said his new hire will focus on day-to-day operations while he concentrates on product development, as he strives to "transform this platform into X, the everything app".

Act now, before it's too late

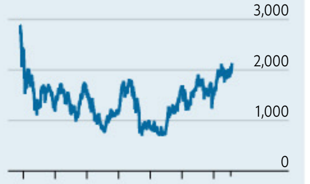
The chief executive of OpenAI, the firm behind the ChatGPT chatbot, called for tighter regulation of rapidly developing **generative artificial intelligence**, such as by forcing disclosure on images that have been generated by AI. Sam Altman told American senators that "if this technology goes wrong, it can go quite wrong", pointing to the near-term potential for its use in the 2024 elections. Some senators did wonder whether regulating AI now would solidify power among companies that dominate the market.

America's Federal Trade Commission filed a lawsuit to block the $28bn takeover of **Horizon Therapeutics** by **Amgen**. It is the FTC's first challenge to a drugs merger in recent memory. It said consolidation in the industry was "rampant", and that its suit is a signal that it won't tolerate mergers that entrench monopolies. Separately, the EU cleared **Microsoft's** takeover of **Activision**, a contrast to America and Britain, where antitrust regulators want to block the deal.

Saudi Aramco is planning another public offering of its shares, according to reports. The IPO of just 1.5% of its stock in 2019 raised $25.6bn, the most ever in a market debut. A second offering would be of a similar size.

China's recovery from covid lockdowns may be weaker than had been thought. Fresh economic data fell far short of forecasts. Industrial production rose by 5.6% in April, year on year, and retail spending by 18.4%. Although those figures are strong on the surface, they are measured against a low point last year when Shanghai went into lockdown.

Japan's stockmarket
Topix, January 4th 1968=100



Source: Refinitiv Datastream

Japan's economy grew by 0.4% in the first quarter over the previous three months. On an annualised basis it expanded by 1.6%, outpacing America's GDP growth by that measure. Domestic demand has picked up, but the country is also benefiting from a recovery in tourism. The bullish mood has pushed the benchmark Topix index to a 33-year high.

A boom in construction helped **Britain** eke out a 0.1% rise in GDP in the first quarter over the final three months of 2022. The insipid performance is in line with updated forecasts from the Bank of England, which thinks the economy will now stagnate in the first half of this year, rather than fall into a recession.

Russia's oil exports hit 8.3m barrels a day in April, according to the International Energy Agency, the most since the invasion of Ukraine in February last year. This also far exceeds Russia's average for 2022 and 2021. Russia has found willing buyers for its oil, notably India and China. The IEA reckons that China will account for 60% of the growth in oil demand this year.

Final approval was given in the EU to the world's first comprehensive framework for **regulating crypto assets**. The new rules come into force next year and will require firms that issue, trade and oversee cryptocurrencies, tokens and stablecoins to obtain a licence. Crypto transfers will be easier to trace and firms will be liable if they lose customers' assets.

It has emerged that the French government is seeking €2.5bn ($2.7bn) in penalties from banks for illicitly trying to avoid tax on **dividend payments**. The headquarters of several banks in France were raided by prosecutors in March as part of the investigation.

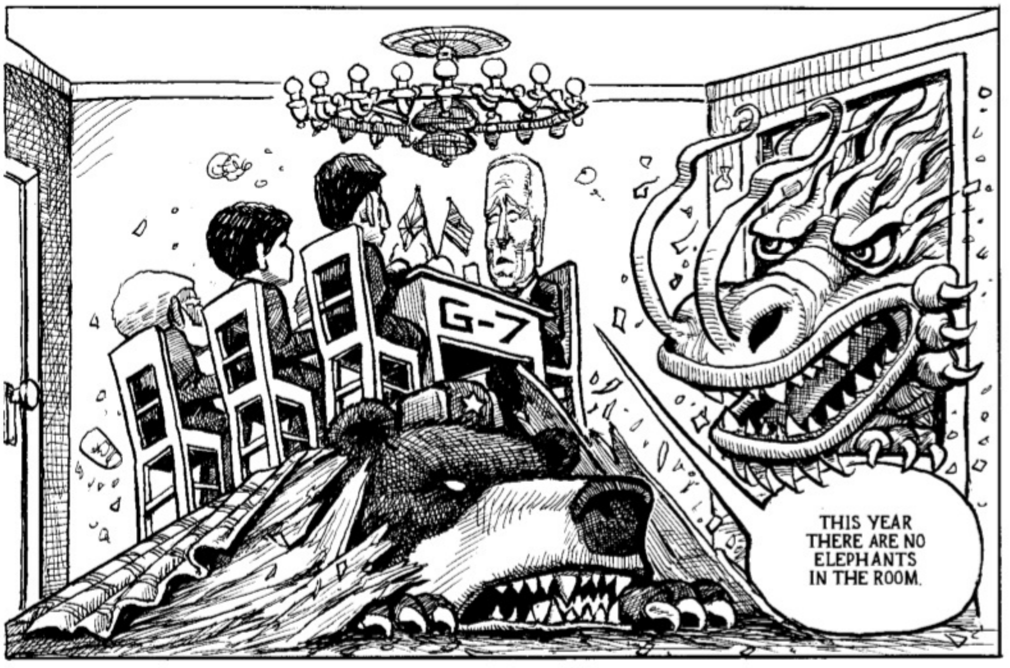
Argentina's central bank raised its main interest rate by six percentage points, to 97%, as it tries to battle inflation topping 100%, the highest level since the early 1990s.

Vice Media filed for bankruptcy protection. Lauded for being an upstart that disrupted the traditional media industry with its digital-focused content, its TV news investigations also scooped up Emmy nominations. In the end the company failed to turn its web traffic into profit. It was valued at $5.7bn in 2017.

Following a lengthy legal battle, **Mike Lynch** was extradited from Britain to America, where he faces charges of fraud related to the acquisition of Autonomy, a software firm he founded, by Hewlett-Packard in 2011. Mr Lynch denies any wrongdoing.

The dire straits of Taiwan

Berkshire Hathaway disclosed that it has sold its remaining stake in TSMC, Taiwan's biggest producer of semiconductors. Warren Buffett has been offloading the holding in recent months, warning of the threat to Taiwan from China. "I don't like its location," he told analysts recently.



The Economist

America's plan for the 21st century

A new Biden doctrine aims to restore American leadership. It is neither bold nor optimistic enough

IN THE 1940s and early 1950s America built a new world order out of the chaos of war. For all its shortcomings, it kept the peace between superpowers and underpinned decades of growth that lifted billions out of poverty. Today that order, based on global rules, free markets and an American promise to uphold both, is fraying. Toxic partisanship at home has corroded confidence in America's government. The financial crisis of 2007-09 dented faith in markets. America's failures in Iraq and Afghanistan undermined its claim to spread democracy. Today most countries refuse to heed its call to enforce sanctions on Russia. And China's rise has spurred American politicians to take a more selfish, zero-sum approach to geopolitics.

China's rise has also increased the threat of war. In a conversation with *The Economist*, Henry Kissinger, who will be 100 this month, warns that China and America are "on the path" to confrontation (see Briefing). "Both sides have convinced themselves that the other represents a strategic danger," he says. The stakes could not be higher: both are nuclear-armed. Both are also dabbling with unpredictable artificial intelligence (AI). The elder statesmen's eldest statesman worries that, just as before the first world war, the superpowers will stumble into catastrophe.

Since arriving in the Oval Office in 2021, Joe Biden has developed a new strategy to preserve American pre-eminence and reduce the risk of conflict. Jake Sullivan, the latest of Mr Kissinger's successors as national security adviser, recently gave the fullest account yet of this Biden doctrine. His narrative weaves together middle-class prosperity, defence and climate change. He repudiates the free-market "Washington consensus" and calls for the government to play a muscular role in society, with a strong emphasis on national security.



This means hyperactive industrial policy. Big subsidies will catalyse private investment in semiconductors and clean energy. Export controls will create "a small yard and high fence" to keep selected technology with potential military uses out of unfriendly hands. At the same time, the administration is softening its rhetoric. Instead of "decoupling" from China's economy, it talks of "de-risking" (see United States section). It wants to find common ground on climate change, African debt and even Ukraine. On May 10th and 11th Mr Sullivan spent eight hours with his Chinese counterpart, the first high-level contact for months.

Behind the doctrine is a belief that a virtuous circle can make America and the world safer. State intervention and protectionism will boost industry, helping the middle class and cooling America's populist fevers. Less erratic leadership (after Donald Trump's) will restore America's authority abroad, even if the Biden team breaks a few global economic rules. The relationship with China will be managed with "strategic maturity". As a precaution America will keep spending large sums on its military forces to deter China from aggression.

Will the new doctrine work? After the chaos of the Trump years, Mr Biden's commitment to diplomacy is welcome. It will be on display at the G7 summit this week (see Asia section). He is right that American foreign policy must deal with new challenges, from Chinese coercion to climate change. However, especially when compared with the post-1945 order, the Biden doctrine is flawed. Its diagnosis of America's problems is too pessimistic, and some of its prescriptions would make America weaker.

Start with the economy. Despite what many believe, America's economic power is not declining. With 4% of the world's people, it generates 25% of global output, a share unchanged since 1980. No other big country is as prosperous or innovative. As we noted last week, the size of China's economy is unlikely ever to surpass America's by much. The main source of America's strength is creative destruction and open markets in a rules-based global economy. So although Mr Biden is right to reinforce the social safety-net, his state-led, insular economic vision may ultimately erode living standards and American clout.

The Biden doctrine seeks to stabilise relations with an autocratic and paranoid China. In this task it is hampered by a second flaw: it muddles legitimate policies with America-first rule-bending. Mr Sullivan wants to combine export controls with co-operative trade, and an arms race with collaboration. But China's leaders think this strategy is meant to keep China down. America's case would be stronger if export controls didn't keep expanding, if Trump-era tariffs were not still in place and if its politicians were not vying to outhawk each other on China. The lack of agreement on trade makes everything harder. Never mind rules on AI, America and China have no system for nuclear-arms control: China's arsenal will almost quadruple by 2035.

The final flaw concerns allies. Mr Biden has backed Ukraine and revived NATO and alliances in Asia. Yet America's unpredictable economic nationalism and unwillingness to offer access to its markets undermines its influence. Europe fears a subsidy race and worries escalating tensions with China will cause it severe damage: our calculations show Germany's economy is twice as exposed to China as America's is (see International section). The decay of global rules is accelerating the embrace of a transactional approach to foreign policy by emerging economies. The post-1945 order rested on American constancy: each administration was guided by predictable interests. Today allies and enemies know chaos may follow the election in 2024. Trumpian dysfunction is not Mr Biden's fault, but it makes it vital to be predictable and open now.

Free, open and predictable

Americans need to be persuaded that a more optimistic, positive-sum approach is in their interests. This is the key that will keep their country strong and unlock a better foreign policy, by allowing it to help forge new global rules on trade, climate, AI and more that old allies and new ones can rely on. Such a revived global order would be the best defence against an autocratic one led by China. Unfortunately the Biden doctrine fails to rebut the narrative of American decline and so has not resolved the tension between the country's toxic politics and its role as the linchpin of a liberal order. Unless America looks out at the world with self-confidence, it will struggle to lead it. ■

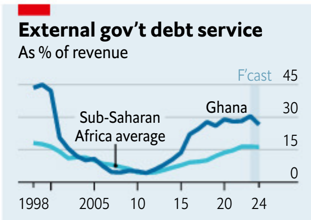
Ghana

The debt-relief duet

China and the West take a step to ease Africa's debt crisis

Ghana made history when it led the wave of sub-Saharan African countries that won independence more than six decades ago. It may now be making history again, as the first test case for a new approach to debt relief. China and Western governments may have overcome one barrier to restructuring the billions of dollars owed by countries with unsustainable debts.

On May 17th the IMF's board signed off on a $3bn bail-out for Ghana and immediately released an urgently needed first tranche of $600m. This was made possible only by assurances from Ghana's bilateral creditors—in particular China, but also the Paris Club, an informal group of mainly rich Western countries—that they would take losses on their loans to Ghana. This is a welcome first step. But assurances need to become reality if countries in debt distress are to get the write-downs they need. And many other African countries require more help from everyone. The danger is that the mounting burden of debt will force African governments to cut back on essential investments in education and health, undermining the progress of recent years (see Middle East & Africa section).



Western governments have long grumbled about China's lending in Africa, accusing it of pushing African countries into a debt trap to control their politics or seize their assets. Though some loans were indeed reckless or burdensome, this criticism is largely unfair. China has financed roads, ports, railways and other needed infrastructure, when private lenders and other countries were often unwilling to do so.

Yet China can be fairly accused of not pulling its oar more recently when the IMF and Western creditors have tried to arrange lifeboats for countries such as Zambia and Malawi, which have found themselves drowning in debt. China has argued that it should not take losses in debt restructurings because its loans were often tied to specific projects such as roads, railways or ports that were generating positive returns for the borrowing country. It has also bridled at having to take a hit on its loans (alongside all other bilateral and private creditors) while the World Bank would have its loans repaid in full. This put China at odds with Western countries, which rightly say the multilateral banks need to keep their preferred status to preserve the high credit ratings that allow them to borrow and lend cheaply.

China and the Paris Club appear to have resolved this impasse with a fudge. In exchange for China agreeing to take losses, the World Bank is expected to provide additional grants and new low-interest concessional loans. Ghana is the first test of this compromise, though also a relatively easy one. It owes China about $1.9bn, or less than a third of the $6bn owed to China by Zambia, which defaulted more than two years ago. Since then Zambia has been stuck in limbo while China and its other creditors have wrangled over how to share out the losses. It now hopes to reach a deal within a month or so.

Public debt to GDP across Africa has climbed to its highest level in two decades. The average cost of servicing external debt now consumes 17% of government revenues, the most since 1999. Debt and interest payments are crowding out spending on schools, clinics and the infrastructure needed for growth. In the 1980s and 1990s, when African countries last had to tighten their belts because of crushing debt, austerity left lasting scars. Young Africans, especially girls, grew up sicker and less literate, and therefore permanently poorer.

To avert a repeat, African countries should first look to their own resources. In most cases government revenues are pitifully low as a share of GDP; tax collection needs to be less haphazard. But donors will sometimes need to chip in with concessional loans and grants. And where debts are unsustainable, they must be restructured, which means China must co-operate with the IMF and take losses. The progress in Ghana shows this may be possible in principle. The plan must now be put into practice. ■

Thailand's election

Forward momentum

The humiliation of Thailand's regime is a big boost for Asian democracy

Rigging Thai ballots keeps getting harder. The first time the country's army-backed regime deigned to hold an election, in 2019, it took an outrageous gerrymander, a stacked electoral system and the mass disqualification of its democratic opponents to prevent them, narrowly, from winning a majority. On May 14th, despite facing many of the same obstacles, Thailand's pro-democracy parties could not be denied. They trounced the regime of Prayuth Chan-ocha, a former army chief who seized power in 2014, winning 313 of the 500 seats available. Pro-military parties—despite their unfair advantages—won only 76.

Worse for the generals and the royalist establishment in cahoots with them, their attempts to suppress Thailand's democracy are radicalising it. The big winner was not, as predicted, the party of Thaksin Shinawatra, an exiled former prime minister, whose supporters had come first in every Thai election since 2001. It was a newer and more uncompromising liberal force. Pushing back against years of democratic retreat in Asia, Move Forward, as it is called, looks like the generals' nemesis.

Led by a 42-year-old former tech executive and Harvard graduate, Pita Limjaroenrat, the party vows to shrink the army and curb *lèse-majesté* laws that make it a serious offence merely to retweet an objective critique of Thailand's overweening royals. ▸▸

Drawing huge support from educated urbanites, Move Forward almost swept the capital, Bangkok, as it surged to victory. Not bad for a party that was relaunched in 2020 after its former iteration (Future Forward) was disbanded by the regime for having done surprisingly well in the previous poll.

Whether the generals will permit Mr Pita to form the democratic coalition government that Thais have so loudly demanded remains unclear. The regime has stacked the senate with its stooges and given them, in effect, a veto on government formation. Yet exercising it, after this thumping electoral verdict, would be reckless as well as wrong. Sooner or later, a democratic revival in Thailand looks inevitable. Blocking it might spark a disorderly transition, as the fury Thais expressed at the ballot box found more violent expression on the streets.

Thailand's vulnerability to coups (it has had 13 since its democracy was founded in 1932) has long seemed anomalous. With a thriving tourism industry and some decent universities, it is no Myanmar. It is the second-biggest economy in South-East Asia and the world's only upper-middle-income country under de facto army control. This embarrassment mainly reflects the hubris of the monarcho-military elite. But it has also been for want of a satisfactory alternative. Mr Thaksin's populism, partiality to his rural base and ambiguous attitude to the monarchy have made him an imperfect democratic champion. Move Forward, which surged on the back of pro-reform protests in 2020 and 2021, appears more attuned to the 72m Thais' frustrations.

Its success is a rebuke not only to the principle of army rule, but also to the regime's ineptitude. Hobbled by cronyism and graft, Thailand's economy is creating fewer opportunities and attracting less foreign direct investment than its regional rivals, including Indonesia and Vietnam. Its post-pandemic recovery is the slowest of any major economy in South-East Asia. Thailand would benefit hugely were Mr Pita to fulfil his pledge to break up the monopolies gumming up industries such as agriculture and telecommunications (where Mr Thaksin made his fortune).

Mr Pita's electoral success, meanwhile, will inspire embattled democrats elsewhere. Authoritarianism is losing its appeal in many Asian countries, thanks to Chinese coercion, Russia's brutal blundering in Ukraine and the failure of authoritarian leaders to govern competently. The largely peaceful protests that drove the economy-wrecking Rajapaksa clan from power in Sri Lanka last year were an early illustration of this disenchantment. With elections looming in Bangladesh, Cambodia, India and Indonesia, all of which will to varying degrees test democracy, the triumph of Thai democrats augurs well.

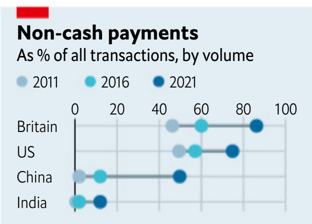
This is appropriate. Their country's democracy, the oldest in South-East Asia, was once a source of economic dynamism and regional leadership. The promise of this election result is a restoration of both qualities. The danger, if the regime digs in, is of an accelerating, perhaps violent, decline. New battle-lines have been drawn; Thailand's fudgy halfway-house democracy no longer looks like an option. That is already progress of a kind. ■

Financial fragmentation

A fight among three

Digital payments have transformed domestic finance. Now competition is going global

Over the past two decades the ways people pay, receive and transfer money have changed beyond recognition. The revolution began in 2007 when M-PESA made it possible for Kenyans to make payments with a text message. In 2011 Alipay launched payment-by-QR-code in China, a system that has all but replaced cash in cities. Since then India's state-led Unified Payments Interface (UPI) and Brazil's Pix have vastly widened access to the financial system among the poor. As our special report explains, globally the use of notes and coins has been cut by a third, e-commerce has boomed and life without digital payments has become unimaginable.



Having transformed how people use money at home, the race to transform payments is now going global. Cross-border retail spending (including tourism) and remittances will hit $5trn this year; business-to-business payments are worth eight times that. Three big players are duking it out to process these vast flows of funds. The West's legacy system, including the Visa-Mastercard duopoly and SWIFT, a messaging system for bank payments, is the dominant incumbent. China is the most advanced challenger, with its payment apps, its card network, UnionPay, and CIPS, its more expansive alternative to SWIFT. In third place is India, whose ambition to deploy UPI globally has grown.

The competition among the three blocs is heating up fast. Alipay is now accepted by 2.5m merchants overseas. UnionPay, which is already the world's largest card network by transaction volume, is accepted by 65m merchants globally, compared with Visa's 100m. Most are outside China. India's UPI has been linked with Singapore's fast payment system, allowing consumers in both countries to pay in the other using their domestic platform. India is in talks with more than 30 other countries to export its payments kit, which would link their systems too. In November four central banks, including China's, successfully tested a cross-border system for settling transactions using central-bank digital currencies.

The Asian giants have several motives for spreading their wings. The most important is to become less dependent on the West. Russia's card network, Mir, launched after Vladimir Putin's illegal annexation of Crimea in 2014, has limited the damage done by the withdrawal of Visa and Mastercard from Russia after its full-scale invasion of Ukraine. Volumes on CIPS have surged since 2020, helped by Russia being mostly cut out of SWIFT. But building a sanctions-workaround is not the only goal. Countries also crave for themselves the clout that comes with control over the world's financial infrastructure, as well as seeking more convenience for their people when they transact internationally.

The West might fear a fragmentation of the global financial infrastructure that allows wrongdoers to escape future sanctions. Yet a more open landscape for global payments will benefit its consumers and businesses. Under competitive pressure ▸▸

SWIFT has already upgraded its once-clunky system and has nearly halved the cost of messaging. The average cost of a remittance has been cut by a third in the past decade partly because of new fintechs. The Western card networks are overdue a shake-up. The typical 1% cross-border fee they charge (on top of a 1-3% levy on merchants) supports company-wide net margins of around 50%, among the highest in the world for listed firms. The spread of Alipay, UPI and even other newcomers like GrabPay in South-East Asia or WhatsApp Pay, which just launched in Singapore and Brazil, will give consumers other options.

Domestic payments markets have tended to be winner-takes-most because people like using a big network with lots of other users. For cross-border payments, consumers and businesses will tend to favour the payments system they use in their respective home countries. Since it is increasingly easy for merchants to accept many different payment options, change seems likely. A system where people can use their domestic networks to pay abroad promises to be more convenient as well as cheaper.

Diverse, not divided

The countries that benefit most will be those that stay open to all platforms and let them overlap, rather than forcing people to use national champions. And though the West will lose some power as a result of the proliferation of alternatives to its payments systems, it will maintain the ability to levy the most effective forms of sanctions: on flows of trade and technology. The digitisation of finance has already made billions of lives better. The new global race promises to enhance those gains. ■

Dinosaurs

Cretaceous capitalism

Why trade in fossils is good for science

THE GREAT auction houses of America and Europe often sell masterpieces by long-dead artists to a grey-haired crowd. They also serve the booming demand for actual fossils. In 2020 Christie's sold "Stan"—one of the most complete *Tyrannosaurus rex* specimens ever discovered—for a record-breaking $31.8m. In April "Trinity", a composite of three *T. rex* specimens, fetched $6.1m at the Koller auction house in Zurich—one of six dino-lots to have breached the $6m threshold since "Stan" was sold. At the end of July Sotheby's is due to auction off another nearly complete specimen.

The buyers are typically rich collectors (Leonardo DiCaprio, a Hollywood actor, has an interest in dinosaur skulls). That alarms many palaeontologists, who fear that museums and other scientific institutions are being priced out of the market by individuals who will lock their collections away (see Science section). Even when scientists are granted access to specimens held privately, many journals have in recent years refused in protest to publish the resulting research.



The antagonism of these scientists towards commerce is misplaced. A thriving market for fossils should lead to more discoveries that—if the trade is appropriately regulated—will benefit science and the public.

Palaeontology has always leaned heavily on prospectors and private collectors. Mary Anning, one of the field's pioneers, attained celebrity status in Victorian England after she discovered the first fossil specimens of ichthyosaurs and plesiosaurs (marine contemporaries of the dinosaurs) eroding out of the fragile coastal cliffs of Dorset in south-west England, known as the "Jurassic coast". The tongue-twister "She sells sea shells on the sea shore" is supposedly a reference to Anning's prolific collection and sale of marine fossils.

Today most fossils sold at auction come from America. Once discovered there, they belong to the landowner and can be legally traded. In many other countries, fossils automatically become the property of the state. The advantage of encouraging the "dinosaur cowboys" of Montana, Wyoming and the Dakotas—which share a big geological deposit—to get digging is that once fossils are exposed, they are as vulnerable to wind, rain and tide as they once were to being munched by a theropod. As Dorset's cliffs collapse, for example, new fossils constantly appear, but can be lost as erosion continues. Scientists often lack the resources to find, collect and preserve every fossil with scientific value before it is destroyed by nature.

The private sector plugs the gap by responding to price signals. Prospecting first boomed after "Sue", another famous *T. rex* specimen, was sold to Chicago's Field Museum for $8.3m in 1997. The recent spate of sales is prompting another rush for bones today. It is not always true that the resulting hoards end up out of sight. "Stan" was bought by the Abu Dhabi Department of Culture and Tourism and is due to go on display in 2025. From Tampa to Copenhagen, many privately owned fossils are on show at museums or soon will be, much as the world's best art galleries often hang privately owned pieces on loan.

Fears of crowding out scientists and the public are not entirely without merit. Sometimes specimens do vanish after being bought anonymously. But nationalising the ownership of fossils does not make the desire to buy and sell them disappear. Instead, it pushes the trade underground. The black market is a bigger threat to science than legitimate trade. Smugglers have much lower standards than auction houses, frequently damaging or destroying specimens, and stolen fossils are even less likely to end up in museums.

T. rent

There are ways to preserve the value to the public of privately owned fossils. Governments could write rules insisting that the discovery of fossils and who owns them is catalogued. They could require specimens to be made available for study, or ensure that museums can make casts. And—although auction houses already demand assurances regarding the provenance of fossils—they could set in stone minimum standards for excavation and handling, to allay fears that prospecting might become a Wild West. It is better to regulate the market and let it thrive than to force it towards extinction. ■

The meaning of Bakhmut

It is true that Bakhmut has little objective strategic value ("No Victory Day", May 6th). It is also true that it has become politically significant for both Kyiv and Moscow, and for some military commanders on each side, most notoriously Yevgeny Prigozhin, who heads the mercenary Wagner Group. Yet that does not mean that there are not good operational reasons for fighting for the town. If Russia wants to advance on Slovyansk and Kramatorsk, as it hoped in late 2022, it has to take Bakhmut in order to secure the crucial roads running through and around it. Having recognised its military significance, both sides have concentrated their forces on it, amplifying its operational importance by that very act.

Carl von Clausewitz recognised that an objective can become important simply because armies converge on it: "...one must keep the dominant characteristics of both belligerents in mind. Out of these characteristics a certain centre of gravity develops, the hub of all power and movement, on which everything depends. That is the point against which all our energies should be directed."

ANTHONY KING
University of Warwick

Investing stages for phages

"When viruses are good for you" (May 6th) pointed out the growing danger of antimicrobial resistance and the need for government intervention. As antibiotics are a poor business proposition, private capital invests only minimally in their development. Unfortunately, bacteriophages, specialist viruses that kill bacteria and the subject of your piece, are subject to the same market forces, if not worse, since manufacturing costs and complexity are greater.

The notion of "funnelling cash into research" is helpful, but it is not enough. Governments must provide some pull incentive as well to correct for the market failure, in the form of an advance procurement, or advance market commitment. A good example is the incentives successfully offered for the development of covid-19 vaccines. My colleagues and I estimate that this reward need be of the order of $2bn for each new compound needed, perhaps $12bn for six compounds over the course of a decade.

Britain has led the way in this direction with its "subscription" model financing drug firms for antibiotics. The American Congress is considering the PASTEUR Act to do something similar. These efforts should be supported.

ERIC EVANS
Senior fellow
Mossavar-Rahmani Centre for Business and Government
Harvard Kennedy School
Cambridge, Massachusetts

Phages "are little known outside the former countries of the Soviet Union" you say ("Viral therapy", May 6th). It would be better to say they are little known outside the former Iron Curtain. One of the best research institutes in phage therapy is the Hirszfeld Institute in Wroclaw, Poland. The first Polish articles to discuss phages were released in 1923 just four years after Félix d'Hérelle's revolutionary discovery in Paris. Polish phage research had a worldwide impact. Irena Lipska's work was well regarded in Brazil in the 1950s.

JAN MAURYCY USZKO
Bristol

What is Starmerism?

Despite all the analysis of the Labour Party we still have no clue about what Sir Keir Starmer really believes in ("Defining Starmerism", April 29th). He has removed the Corbynite rump, without saying why he once supported Jeremy Corbyn. He won't tell us what he believes our relationship with Europe should be post-Brexit. He criticised the government on immigration, but won't face down Labour activists who want open borders. On women's rights he has moved his position half a bum cheek, but only when his advisers told him he would lose the election if the mantra of "transwomen are women" became policy.

The last issue is the most instructive for what it tells us about Sir Keir. By the way he switched tack he shows himself to be nothing less, but also nothing more, than a lawyer. So was Tony Blair, but by 1997 we were also clear about his principles and, with the clunking fist of Gordon Brown beside him, we had a good idea of how a Labour government would work.

SIMON DIGGINS
Rickmansworth, Hertfordshire

Sir Keir's book, "European Human Rights Law", might not be "sizzling" ("A Laborious read", April 29th), but when the Human Rights Act came out it heralded a paradigm shift in British legal practice and it was the bestselling law title for over a year. Two elements of the book presage the Starmerism that is beginning to emerge. First, the fact that he chose Legal Action Group, a small charity, as his publisher, rather than one of the big legal presses, what you term "stakeholderism". And second, the book was organised by practice area rather than the act's article-by-article approach, which was especially valuable for hard-pressed and under-resourced lawyers representing social-welfare law cases. This shows that Sir Keir is a pragmatic problem-solver. Britain's current travails would benefit from his thoughtful thoroughness.

SAM WATSON
London

Rebels in the Philippines

You glibly foretell the demise of the New People's Army and brand the politics of the Communist Party of the Philippines as "idiotic" ("Out of ammo" May 6th). Fair enough. Yet the need to navigate a relationship to "the movement" centred on those organisations occupied two or three generations of the Philippines' best and brightest and distorted the country's intellectual life in lasting ways. Also lasting is the deep social inequality that drove so many talented and educated young Filipinos into the reds' arms in the first place.

MICHAEL MONTESANO
Tokyo

Generative garbage

Shortly after reading the By invitation from Yuval Noah Harari on artificial intelligence (April 28th) I had an epiphany while scrolling through the labyrinth of LinkedIn and corporate blogs. They are the future déjà vu of a world dominated by generative AI. The mind-numbing, buzzword-infested content is caught in an eternal loop of superficiality, making me question if the authors are actually humans or the AI overlords that we've been warned about. These corporate types, armed with an arsenal of clichés and jargon, contribute to the growing mountain of shallow content with the same fervour as AI models churning out words, battling each other to produce lacklustre text.

ADAM HORNE
Creative director
Berghs School of Communication
Stockholm

Picky

I was surprised to see a small slip twice in your august publication ("The evolution will not be televised", April 1st; Bagehot, April 29th). Leon Trotsky was not killed with an ice pick, but with an ice axe, which is displayed in the International Spy Museum in Washington. We wouldn't want aspiring mountaineers or aspiring assassins to inadvertently make the wrong purchase.

NEVIN HALL
Austin, Texas

Letters are welcome and should be addressed to the Editor at
The Economist, The Adelphi Building, 1-11 John Adam Street, London WC2N 6HT
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More letters are available at:
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- **supporting and helping to develop the work** of students and academic, administrative and technical staff;
- **building and promoting a strategic vision** for the institution's short-, medium- and long-term development in a manner that is coherent with the global socio-ecological transition, so that the institution will be adequately prepared for future challenges as a collective;
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Deadline: 30 June 2023

The secretariat of the University Assembly is available to answer questions and provide additional information (assemblee@unige.ch). Selected applicants will be invited to take part in an initial non-public session, consisting of a presentation and interview, with the University Assembly. Finalists for the position will undergo assessment and be asked to present their agendas at a public session before the end of the year.
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CGIAR

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How to prevent a third world war

NEW YORK

America and China must learn to live together. They have less than ten years

In Beijing they have concluded that America will do anything to keep China down. In Washington they are adamant that China is scheming to supplant the United States as the world's leading power. For a sobering analysis of this growing antagonism—and a plan to prevent it causing a superpower war—visit the 33rd floor of an Art Deco building in midtown Manhattan, the office of Henry Kissinger.

On May 27th Mr Kissinger will turn 100. Nobody alive has more experience of international affairs, first as a scholar of 19th-century diplomacy, later as America's national security adviser and secretary of state, and for the past 46 years as a consultant and emissary to monarchs, presidents and prime ministers. Mr Kissinger is worried. "Both sides have convinced themselves that the other represents a strategic danger," he says. "We are on the path to great-power confrontation."

At the end of April *The Economist* spoke to Mr Kissinger for over eight hours about how to prevent the contest between China and America from descending into war. These days he is stooped and walks with difficulty, but his mind is needle-sharp. As he contemplates his next two books, on artificial intelligence (AI) and the nature of alliances, he remains more interested in looking forward than raking over the past.

Mr Kissinger is alarmed by China's and America's intensifying competition for technological and economic pre-eminence. Even as Russia tumbles into China's orbit and war overshadows Europe's eastern flank, he fears that AI is about to supercharge the Sino-American rivalry. Around the world, the balance of power and the technological basis of warfare are shifting so fast and in so many ways that countries lack any settled principle on which they can establish order. If they cannot find one, they may resort to force. "We're in the classic pre-world war one situation," he says, "where neither side has much margin of political concession and in which any disturbance of the equilibrium can lead to catastrophic consequences."

Study war some more

Mr Kissinger is reviled by many as a warmonger for his part in the Vietnam war, but he considers the avoidance of conflict between great powers as the focus of his life's work. After witnessing the carnage caused by Nazi Germany and suffering the murder of 13 close relatives in the Holocaust, he became convinced that the only way to prevent ruinous conflict is hard-headed diplomacy, ideally fortified by shared values. "This is the problem that has to be solved," he says. "And I believe I've spent my life trying to deal with it." In his view, the fate of humanity depends on whether America and China can get along. He believes the rapid progress of AI, in particular, leaves them only five-to-ten years to find a way.

Mr Kissinger has some opening advice to aspiring leaders: "Identify where you are. Pitilessly." In that spirit, the starting-point for avoiding war is to analyse China's growing restlessness. Despite a reputation for being conciliatory towards the government in Beijing, he acknowledges that many Chinese thinkers believe America is on a downward slope and that, "therefore, as a result of an historic evolution, they will eventually supplant us."

He believes that China's leadership resents Western policymakers' talk of a global rules-based order, when what they really mean is America's rules and America's order. China's rulers are insulted by what they see as the condescending bargain offered by the West, of granting China privileges if it behaves (they surely think the privileges should be theirs by right, as a rising power). Indeed, some in China suspect that America will never treat it as an equal and that it's foolish to imagine it might.

However, Mr Kissinger also warns against misinterpreting China's ambitions. In Washington, "They say China wants world domination...The answer is that they [in China] want to be powerful," he says. "They're not heading for world domination in a Hitlerian sense," he says. ▸▸

"That is not how they think or have ever thought of world order."

In Nazi Germany war was inevitable because Adolf Hitler needed it, Mr Kissinger says, but China is different. He has met many Chinese leaders, starting with Mao Zedong. He did not doubt their ideological commitment, but this has always been welded onto a keen sense of their country's interests and capabilities.

Mr Kissinger sees the Chinese system as more Confucian than Marxist. That teaches Chinese leaders to attain the maximum strength of which their country is capable and to seek to be respected for their accomplishments. Chinese leaders want to be recognised as the international system's final judges of their own interests. "If they achieved superiority that can genuinely be used, would they drive it to the point of imposing Chinese culture?" he asks. "I don't know. My instinct is No...[But] I believe it is in our capacity to prevent that situation from arising by a combination of diplomacy and force."

One natural American response to the challenge of China's ambition is to probe it, as a way to identify how to sustain the equilibrium between the two powers. Another is to establish a permanent dialogue between China and America. China "is trying to play a global role. We have to assess at each point if the conceptions of a strategic role are compatible." If they are not, then the question of force will arise. "Is it possible for China and the United States to coexist without the threat of all-out war with each other? I thought and still think that it [is]." But he acknowledges success is not guaranteed. "It may fail," he says. "And therefore, we have to be militarily strong enough to sustain the failure."

The urgent test is how China and America behave over Taiwan. Mr Kissinger recalls how, on Richard Nixon's first visit to China in 1972, only Mao had the authority to negotiate over the island. "Whenever Nixon raised a concrete subject, Mao said, 'I'm a philosopher. I don't deal with these subjects. Let Zhou [Enlai] and Kissinger discuss this.'...But when it came to Taiwan, he was very explicit. He said, 'They are a bunch of counter-revolutionaries. We don't need them now. We can wait 100 years. Someday we will ask for them. But it's a long distance away.'"

Mr Kissinger believes that the understanding forged between Nixon and Mao was overturned after only 50 of those 100 years by Donald Trump. He wanted to inflate his tough image by wringing concessions out of China over trade. In policy the Biden administration has followed Mr Trump's lead, but with liberal rhetoric.

Mr Kissinger would not have chosen this path with respect to Taiwan, because a Ukrainian-style war there would destroy the island and devastate the world economy. War could also set back China domestically, and its leaders' greatest fear remains upheaval at home.

"It is not a simple matter for the United States to abandon Taiwan without undermining its position elsewhere"

The fear of war creates grounds for hope. The trouble is that neither side has much room to make concessions. Every Chinese leader has asserted his country's connection to Taiwan. At the same time, however, "the way things have evolved now, it is not a simple matter for the United States to abandon Taiwan without undermining its position elsewhere."

Mr Kissinger's way out of this impasse draws on his experience in office. He would start by lowering the temperature, and then gradually build confidence and a working relationship. Rather than listing all their grievances, the American president would say to his Chinese counterpart, "Mr President, the two greatest dangers to peace right now are us two. In the sense that we have the capacity to destroy humanity." China and America, without formally announcing anything, would aim to practise restraint.

Never a fan of policymaking bureaucracies, Mr Kissinger would like to see a small group of advisers, with easy access to each other, working together tacitly. Neither side would fundamentally change its position on Taiwan, but America would take care over how it deploys its forces and try not to feed the suspicion that it supports the island's independence.



Mr Kissinger's second piece of advice to aspiring leaders is: "Define objectives that can enlist people. Find means, describable means, of achieving these objectives." Taiwan would be just the first of several areas where the superpowers could find common ground and so foster global stability.

In a recent speech Janet Yellen, America's treasury secretary, suggested that these should include climate change and the economy. Mr Kissinger is sceptical about both. Although he is "all for" action on the climate, he doubts it can do much to create confidence or help establish a balance between the two superpowers. On the economy, the danger is that the trade agenda is hijacked by hawks who are unwilling to give China any room to develop at all.

That all-or-nothing attitude is a threat to the broader search for detente. If America wants to find a way to live with China, it should not be aiming for regime change. Mr Kissinger draws on a theme present in his thought from the very beginning. "In any diplomacy of stability, there has to be some element of the 19th-century world," he says. "And the 19th-century world was based on the proposition that the existence of the states contesting it was not at issue."

Some Americans believe that a defeated China would become democratic and peaceful. Yet, however much Mr Kissinger would prefer China to be a democracy, he sees no precedent for that outcome. More likely, a collapse of the communist regime would lead to a civil war that hardened into ideological conflict and only added to global instability. "It's not in our interest to drive China to dissolution," he says.

Rather than digging in, America will have to acknowledge China has interests. A good example is Ukraine.

China's president, Xi Jinping, only recently contacted Volodymyr Zelensky, his Ukrainian counterpart, for the first time since Russia invaded Ukraine in February last year. Many observers have dismissed Mr Xi's call as an empty gesture designed to placate Europeans, who complain that China is too close to Russia. By contrast, Mr Kissinger sees it as a declaration of serious intent that will complicate the diplomacy surrounding the war, but which may also create precisely the sort of opportunity to build the superpowers' mutual trust.

Mr Kissinger begins his analysis by condemning Russia's president, Vladimir Putin. "It was certainly a catastrophic mistake of judgment by Putin at the end," he says. But the West is not without blame. "I thought that the decision to...leave open the membership of Ukraine in NATO was very wrong." That was destabilising, be-

cause dangling the promise of NATO protection without a plan to bring it about left Ukraine poorly defended even as it was guaranteed to enrage not only Mr Putin, but also many of his compatriots.

The task now is to bring the war to an end, without setting the stage for the next round of conflict. Mr Kissinger says that he wants Russia to give up as much as possible of the territory that it conquered in 2014, but the reality is that in any ceasefire Russia is likely to keep Sevastopol (the biggest city in Crimea and Russia's main naval base on the Black Sea), at the very least. Such a settlement, in which Russia loses some gains but retains others, could leave both a dissatisfied Russia and a dissatisfied Ukraine.

In his view, that is a recipe for future confrontation. "What the Europeans are now saying is, in my view, madly dangerous," he says. "Because the Europeans are saying: 'We don't want them in NATO, because they're too risky. And therefore, we'll arm the hell out of them and give them the most advanced weapons.'" His conclusion is stark: "We have now armed Ukraine to a point where it will be the best-armed country and with the least strategically experienced leadership in Europe."

To establish a lasting peace in Europe requires the West to take two leaps of imagination. The first is for Ukraine to join NATO, as a means of restraining it, as well as protecting it. The second is for Europe to engineer a rapprochement with Russia, as a way to create a stable eastern border.

Plenty of Western countries would understandably balk at one or other of those aims. With China involved, as an ally of Russia's and an opponent of NATO, the task will become even harder. China has an overriding interest to see Russia emerge intact from the war in Ukraine. Not only does Mr Xi have a "no-limits" partnership with Mr Putin to honour, but a collapse in Moscow would trouble China by creating a power vacuum in Central Asia that risks being filled by a "Syrian-type civil war".

Following Mr Xi's call to Mr Zelensky, Mr Kissinger believes that China may be positioning itself to mediate between Russia and Ukraine. As one of the architects of the policy that pitted America and China against the Soviet Union, he doubts that China and Russia can work together well. True, they share a suspicion of the United States, but he also believes that they have an instinctive distrust of one another. "I have never met a Russian leader who said anything good about China," he says. "And I've never met a Chinese leader who said anything good about Russia." They are not natural allies.

The Chinese have entered diplomacy over Ukraine as an expression of their national interest, Mr Kissinger says. Although they refuse to countenance the destruction of Russia, they do recognise that Ukraine should remain an independent country and they have cautioned against the use of nuclear weapons. They may even accept Ukraine's desire to join NATO. "China does this, in part, because they do not want to clash with the United States," he says. "They are creating their own world order, in so far as they can."



The second area where China and America need to talk is AI. "We are at the very beginning of a capability where machines could impose global pestilence or other pandemics," he says, "not just nuclear but any field of human destruction."

He acknowledges that even experts in AI do not know what its powers will be (going by the evidence of our discussions, transcribing a thick, gravelly German accent is still beyond its capabilities). But Mr Kissinger believes that AI will become a key factor in security within five years. He compares its disruptive potential to the invention of printing, which spread ideas that played a part in causing the devastating wars of the 16th and 17th centuries.

"[We live] in a world of unprecedented destructiveness," Mr Kissinger warns. Despite the doctrine that a human should be in the loop, automatic and unstoppable weapons may be created. "If you look at military history, you can say, it has never been possible to destroy all your opponents, because of limitations of geography and of accuracy. [Now] there are no limitations. Every adversary is 100% vulnerable."

> *"There are no limitations. Every adversary is 100% vulnerable...[We live] in a world of unprecedented destructiveness"*

AI cannot be abolished. China and America will therefore need to harness its power militarily to a degree, as a deterrent. But they can also limit the threat it poses, in the way that arms-control talks limited the threat of nuclear weapons. "I think we have to begin exchanges on the impact of technology on each other," he says. "We have to take baby steps towards arms control, in which each side presents the other with controllable material about capabilities." Indeed, he believes that the negotiations themselves could help build mutual trust and the confidence that enables the superpowers to practise restraint. The secret is leaders strong and wise enough to understand that AI must not be pushed to its limits. "And if you then rely entirely on what you can achieve through power, you're likely to destroy the world."

Mr Kissinger's third piece of advice for aspiring leaders is to "link all of these to your domestic objectives, whatever they are." For America, that involves learning how to be more pragmatic, focusing on the qualities of leadership and, most of all, renewing the country's political culture.

Mr Kissinger's model for pragmatic thinking is India. He recalls a function at which a former senior Indian administrator explained that foreign policy should be based on non-permanent alliances geared to the issues, rather than tying up a country in big multilateral structures.

Such a transactional approach will not come naturally to America. The theme running through Mr Kissinger's epic history of international relations, "Diplomacy", is that the United States insists on depicting all its main foreign interventions as expressions of its manifest destiny to remake the world in its own image as a free, democratic, capitalist society.

The problem for Mr Kissinger is the corollary, which is that moral principles too often override interests—even when they will not produce desirable change. He acknowledges that human rights matter, but disagrees with putting them at the heart of your policy. The difference is between imposing them, or saying that it will affect relations, but the decision is theirs.

"We tried [imposing them] in Sudan," he notes. "Look at Sudan now." Indeed, the knee-jerk insistence on doing the right thing can become an excuse for failing to think through the consequences of policy, he says. The people who want to use power to change the world, Mr Kissinger argues, are often idealists, even though realists are

more typically seen as willing to use force.

India is an essential counterweight to China's growing power. Yet it also has a worsening record of religious intolerance, judicial bias and a muzzled press. One implication—though Mr Kissinger did not directly comment—is that India will therefore be a test of whether America can be pragmatic. Japan will be another. Relations will be fraught if, as Mr Kissinger predicts, Japan takes moves to secure nuclear weapons within five years. With one eye on the diplomatic manoeuvres that more or less kept the peace in the 19th century, he looks to Britain and France to help the United States think strategically about the balance of power in Asia.

Big-shoe-fillers wanted

Leadership will matter, too. Mr Kissinger has long been a believer in the power of individuals. Franklin D. Roosevelt was farsighted enough to prepare an isolationist America for what he saw as an inevitable war against the Axis powers. Charles de Gaulle gave France a belief in the future. John F. Kennedy inspired a generation. Otto von Bismarck engineered German unification, and governed with dexterity and restraint—only for his country to succumb to war-fever after he was ousted.

Mr Kissinger acknowledges that 24-hour news and social media make his style of diplomacy harder. "I don't think a president today could send an envoy with the powers that I had," he says. But he argues that to agonise about whether a way ahead is even possible would be a mistake. "If you look at the leaders whom I've respected, they didn't ask that question. They asked, 'Is it necessary?'"

He recalls the example of Winston Lord, a member of his staff in the Nixon administration. "When we intervened in Cambodia, he wanted to quit. And I told him, 'You can quit and march around this place carrying a placard. Or you can help us solve the Vietnam war.' And he decided to stay... What we need [is] people who make that decision—that they're living in this time, and they want to do something about it, other than feel sorry for themselves."

Listen to the interview

To hear excerpts from our conversation with Henry Kissinger on The Intelligence, our daily podcast, go to **economist.com/kissinger-podcast.** A transcript of the interview can be found at **economist.com/kissinger-transcript**

Leadership reflects a country's political culture. Mr Kissinger, like many Republicans, worries that American education dwells on America's darkest moments. "In order to get a strategic view you need faith in your country," he says. The shared perception of America's worth has been lost.

He also complains that the media lack a sense of proportion and judgment. When he was in office the press were hostile, but he still had a dialogue with them. "They drove me nuts," he says. "But that was part of the game...they weren't unfair." Today, in contrast, he says that the media have no incentive to be reflective. "My theme is the need for balance and moderation. Institutionalise that. That's the aim."

Worst of all, though, is politics itself. When Mr Kissinger came to Washington, politicians from the two parties would routinely dine together. He was on friendly terms with George McGovern, a Democratic presidential candidate. For a national security adviser from the other side that would be unlikely today, he believes. Gerald Ford, who took over after Nixon resigned, was the sort of person whose opponents could rely on him to act decently. Today, any means are considered acceptable.

"I think Trump and now Biden have driven [animosity] over the top," Mr Kissinger says. He fears that a situation like Watergate could lead to violence and that America lacks leadership. "I don't think Biden can supply the inspiration and...I'm hoping that Republicans can come up with somebody better," he says. "It's not a great moment in history," he laments, "but the alternative is total abdication."



America desperately needs long-term strategic thinking, he believes. "That's our big challenge which we must solve. If we don't, the predictions of failure will be proved true."

If time is short and leadership lacking, where does that leave the prospects for China and the United States finding a way to live together in peace?

"We all have to admit we're in a new world," Mr Kissinger says, "for whatever we do can go wrong. And there is no guaranteed course." Even so he professes to feel hope. "Look, my life has been difficult, but it gives ground for optimism. And difficulty—it's also a challenge. It shouldn't always be an obstacle."

He stresses that humanity has taken enormous strides. True, that progress has often occurred in the aftermath of terrible conflict—after the Thirty Years War, the Napoleonic wars and the second world war, for example, but the rivalry between China and America could be different. History suggests that, when two powers of this type encounter each other, the normal outcome is military conflict. "But this is not a normal circumstance," Mr Kissinger argues, "because of mutually assured destruction and artificial intelligence."

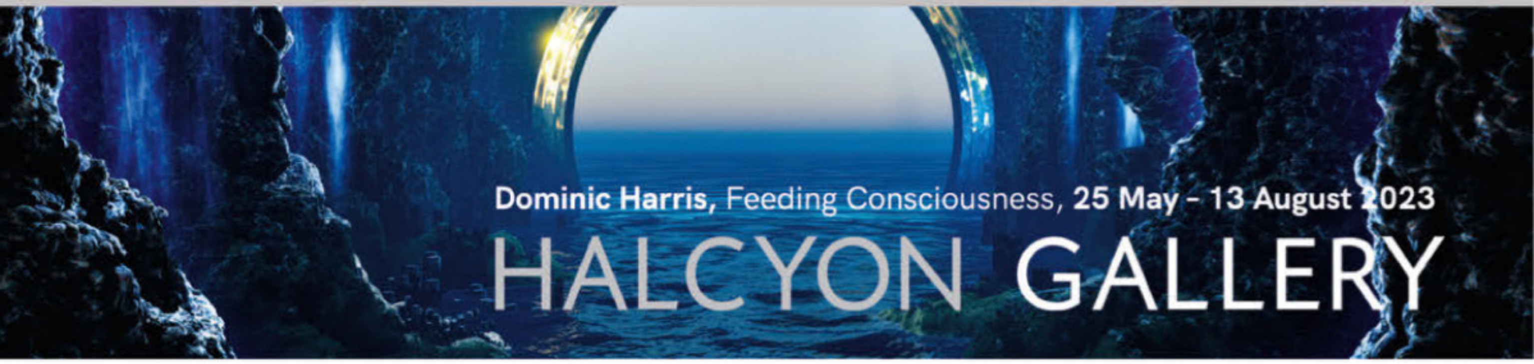
"I think it's possible that you can create a world order on the basis of rules that Europe, China and India could join, and that's already a good slice of humanity. So if you look at the practicality of it, it can end well—or at least it can end without catastrophe and we can make progress."

That is the task for the leaders of today's superpowers. "Immanuel Kant said peace would either occur through human understanding or some disaster," Mr Kissinger explains. "He thought that it would occur through reason, but he could not guarantee it. That is more or less what I think."

World leaders therefore bear a heavy responsibility. They require the realism to face up to the dangers ahead, the vision to see that a solution lies in achieving a balance between their countries' forces, and the restraint to refrain from using their offensive powers to the maximum. "It is an unprecedented challenge and great opportunity," Mr Kissinger says.

The future of humanity depends on getting it right. Well into the fourth hour of the day's conversation, and just weeks before his birthday celebrations, Mr Kissinger adds with a characteristic twinkle, "I won't be around to see it either way." ■

ADVERTISEMENT



DOMINIC HARRIS: CRAFTING DIGITAL ART FROM THE STOCK MARKET

Words by Paul Beatrix

"I'm quite obsessed with structuring the world around me," Dominic Harris tells me as I follow him around his expansive canal-side studio in North Kensington. "And, beyond that, it's about drawing on the stories of how forms have taken on significance." The British architecturally trained visual artist has produced conceptually and technologically complex works, continuously redefining the scope of digital art over the last 15 years. Now, he's about to open his most ambitious exhibition to date at Halcyon Gallery's new flagship site on New Bond Street. "Throughout the history of art, technological innovations have allowed generations of artists to explore new possibilities," says Paul Green, the gallery's President and Founder. "Dominic is pushing the boundaries of what is possible in the medium." Titled Feeding Consciousness, the show features eighteen new interactive works combining AI, code, machine learning, 3D sensors and other cutting-edge technology.

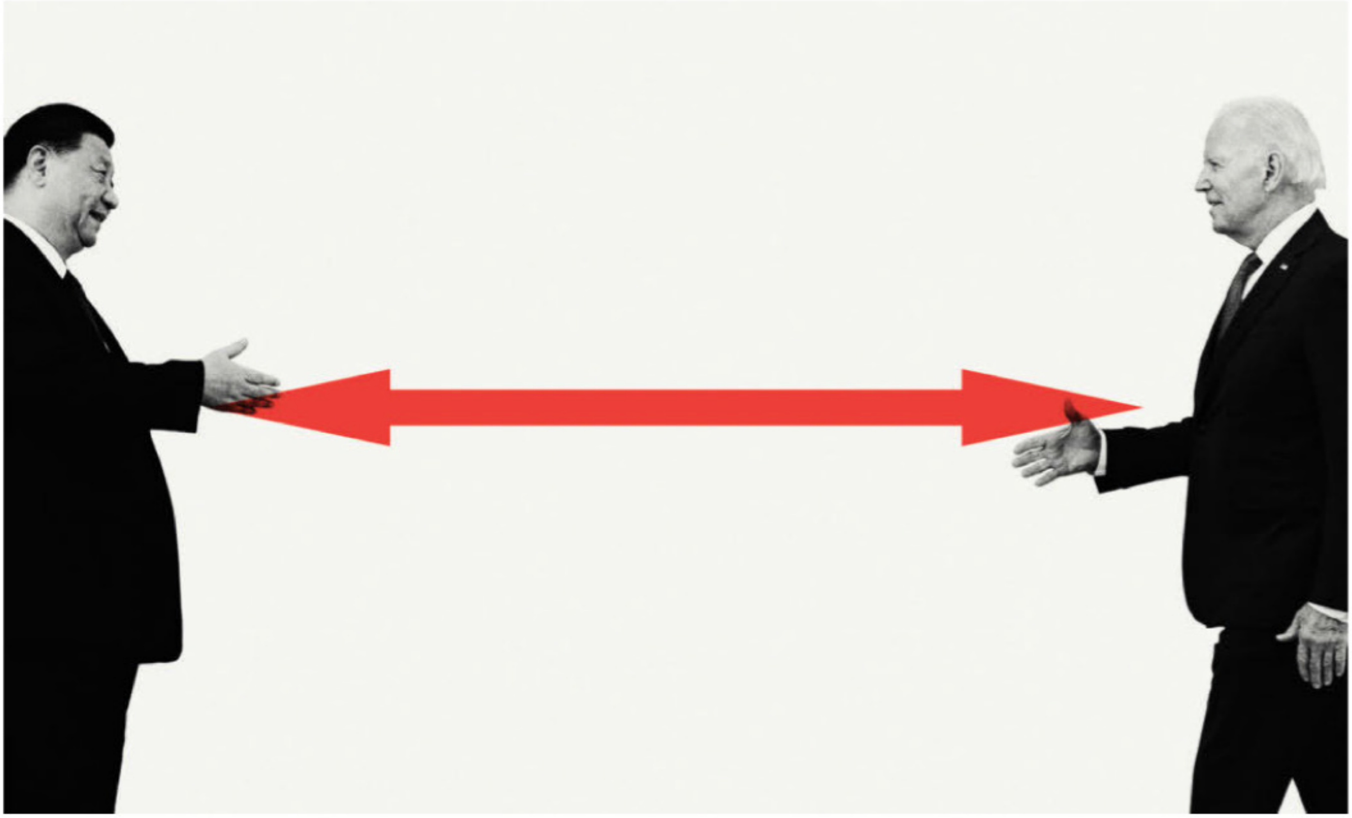
The origin myth of the Tower of Babel serves as the inspiration for two central works. The first, titled Limitless, consists of an eight-foot-high vertical touchscreen upon which a tower of gold blocks appears stacked together. Each of them is stamped with a company's logo and is connected to the FTSE share index which, in turn, dictates the blocks' position and degree of tarnish or lustre. Altogether, the piece manifests real-time fluctuations of the market it is connected to, providing a didactic and conceptual reflection of capital growth. Upon touching the screen, the faces of the companies' CEOs appear, nodding to the financial market's human dimension. "It's quite an opulent celebration," says the artist. "Yet, if this tower were ever to fall, it would be game over for everybody, right?"

The second is the show's namesake work, Feeding Consciousness: a ten-foot tower-like sculpture composed of 180 screens fed by the top-most discussed topics on Google at any given time and place. The result is an ever-changing visual landscape, like a "stream of consciousness of a large collective of people," Harris says. For example, depending on trending news, screens may be simultaneously populated by football players, politicians and royal figures, providing real-time visualisation of the online trafficking of information. Like the Tower of Babel, these works are "being built up by mankind," Harris explains, "but instead of language, I'm using data." It highlights the never-ending battle for media domination as each new story vies for our attention, altering the landscape of the tower, only to be replaced by the next fleeting trend.

This focus on live data represents a shift in the artist's practice which, until then, had focused on the digital reproduction of natural imagery. For instance, his signature 3D-animated butterflies use complex techniques which reproduce the structural colour caused by microscopic features in the insect's wings. "Here, you can see that every single pixel, every single detail has been crafted," Harris tells me as we observe digitally hand-painted butterflies flying from one sensor-equipped screen to another in response to our movements. By contrast, with pieces like Limitless or Feeding Consciousness, the artist has virtually no control over the ever-shifting appearance of the work. "The artwork is conceptual and highly crafted. Yet I'm leaving the visual output to the collective pulling of data," Harris says. "Instead of responding to the movements of the viewer, these pieces respond to the movement of the markets or search data to create two real-time mirrors - to my mind two beautiful mirrors - that reflect our financial economy and our attention economy."

HALCYON GALLERY

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Great-power rivalry

Decoding the detente

PALO ALTO AND WASHINGTON, DC

Making sense of the fault lines in American policy towards China

THE CONTEST between America and China has a postmodern look to it. Whereas presidents tried to isolate and contain the Soviet Union, America is economically entwined with China, the current would-be hegemon. The official government posture on Taiwan is "strategic ambiguity", a line so confusing that President Joe Biden has rewritten it several times. Perhaps that is why Jake Sullivan, the president's national security adviser, reached for the example of the world's most famous postmodernist architect when trying to explain the administration's industrial and trade policies. "The way that we are going to build an international economic architecture is not going to be with Parthenon-style clear pillars as we did after the end of the second world war, but something that feels a little bit more like Frank Gehry."

Mr Sullivan met Wang Yi, a senior Chinese foreign-policy official, for more than eight hours in Vienna last week, which suggests a mutual willingness to prevent the world's most important bilateral relationship from getting even worse. That meeting followed speeches by Mr Sullivan and Janet Yellen, the treasury secretary, outlining the administration's thoughts about China. Both speak for the same boss. But parse the remarks closely, and differences within the administration are clear.

Whereas Mr Sullivan is already sketching his curvilinear "new Washington consensus", Ms Yellen says that America is simply calling for "the very same international order that helped make China's economic transformation possible". Mr Sullivan resoundingly criticised the trade liberalisation of the 1990s and the "China shock" to manufacturing jobs that followed. No such critiques can be found in Ms Yellen's thinking, which aims for "healthy economic engagement that benefits both countries".

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The two are on opposite ends of the administration's approach towards China—with Ms Yellen the (lonesome) dove and Mr Sullivan the (influential) hawk. And yet both in their own way are trying to sound notes of conciliation. The Biden administration, perhaps fearing that it has let relations with China sour too quickly, is publicly trying to pull back.

The low point came in late January, after a Chinese balloon was spotted in American airspace, loitering around sensitive nuclear-weapons bases before Mr Biden ordered it shot down off the coast. America's military leaders were unable to reach their Chinese counterparts through the kinds of hotline channels that were in regular use during the cold war with the Soviet Union. The incident nixed a trip to China that Antony Blinken, the secretary of state, had been planning, which would have included a meeting with President Xi Jinping. The thaw in tensions that followed Mr Biden's meeting with Mr Xi in Bali in November 2022 proved brief.

There is now a desire to return to something like the "spirit of Bali". But members of the administration have complicated ▸▸

aims: to prevent China invading Taiwan, to preserve trade but with more carve-outs for national security, and to lead the world in managing climate change and debt crises in emerging markets. They believe America and China can work together on Ukraine. To explain this in a non-threatening way they resort to soothing slogans: "competition not conflict"; "de-risking not decoupling"; leaving trade open except for "a small yard and high fence".

What do these phrases actually mean? Export controls on high-end semiconductors that could be used in Chinese weapons systems are one thing. But the restrictions the administration is mulling with the aim of maintaining a lead on AI, quantum computing, clean-energy production and biotechnology are a sign that the small yard may be larger than advertised. Military hawkishness and protectionist impulses are strong in America. Even if Mr Biden seeks a middle road, he may find himself pushed by these forces, particularly as the presidential election of 2024 looms.

Another difficulty for the White House in setting a national China policy is that America's politics are decentralised and raucous. State lawmakers can go it alone, burnishing their credentials by sounding hawkish. On May 8th Ron DeSantis, the governor of Florida and possible presidential candidate, signed a law to expunge "the malign influence of the Chinese Communist Party" by limiting the ability of Chinese nationals to buy land in the state and barring state universities from accepting foreign funds from countries "of concern".

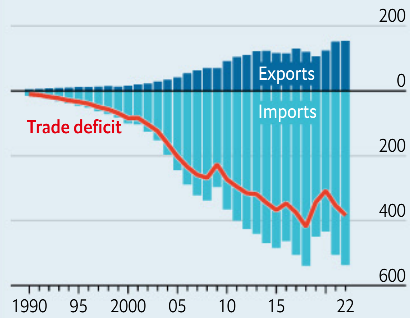
Nor does the executive branch have any control over the legislative one. Last August Nancy Pelosi, then speaker of the House, visited Taiwan over Mr Biden's objections. Kevin McCarthy, her Republican successor, has proceeded with more caution, meeting the Taiwanese president, Tsai Ing-Wen, during a visit to California rather than inflaming tensions by repeating Ms Pelosi's stunt. "Discerning...the real nature of US policy towards China, I do think has become harder for Beijing," says Christopher Johnson of the Centre for Strategic and International Studies, a think-tank. "You hear from Chinese counterparts a lot of concern about what they see coming out of the Hill."

In January a group of 19 House Republicans introduced a resolution to end the formal "One China" policy that America adheres to and recognise Taiwan as an independent country. A bipartisan bunch of senators have proposed legislation that could allow the secretary of commerce to ban TikTok, a wildly popular Chinese-owned social-media platform.

House Republicans have set up a select committee on the Chinese Communist Party that has been gathering evidence on sensitive matters like forced labour for

Into the red

United States, trade in goods with China, $bn



Source: Census Bureau

Uyghurs and the Communist Party's efforts to install police stations abroad. So far there has been rather unusual agreement between the committee's Republican chairman, Mike Gallagher of Wisconsin, and the senior Democratic member, Raja Krishnamoorthi of Illinois.

One member of the committee who hopes to introduce some serious debate is Ro Khanna, a Democrat from California. "I would argue right now that the Democratic response has been rudderless on the committee...It's been dominated by a vision that presupposes a cold war," he says. "I think there are three places you can be," he adds. "One is Donald Trump: let's just have a complete ban and decoupling. The other ...is Janet Yellen, which is: no decoupling, we just need to continue almost status quo economically. And then the ground I'm trying to articulate is: we need a rebalancing...the status quo didn't work."

Mr Khanna, who recently gave a speech on China at Stanford, wants to reduce the bilateral trade deficit to near-zero over the next decade, and renew China's most-favoured-nation trading status annually, instead of allowing it to be permanent. Free-marketeers argue that this would backfire. "The common mistake of Khanna and Trump and some of the people advising the Biden administration is the idea that the US alone determines the world," argues Adam Posen, president of the Peterson Institute for International Economics.

It suits the administration to give prominence to Ms Yellen when it is trying to reduce the risk of a miscalculation and to reassure allies (see Europe section) . She may visit China before long, as may Gina Raimondo, the commerce secretary. Yet the White House is trying to balance contradictory impulses. To stretch Mr Sullivan's architectural analogy to breaking point, the result could turn out to be like Mr Gehry's weird but harmonious concert hall in Los Angeles. Or it could be so impractical that, like Mr Gehry's computer-science school at MIT, the building leaks and its architect gets sued. ■

Courts

New York's hottest venue

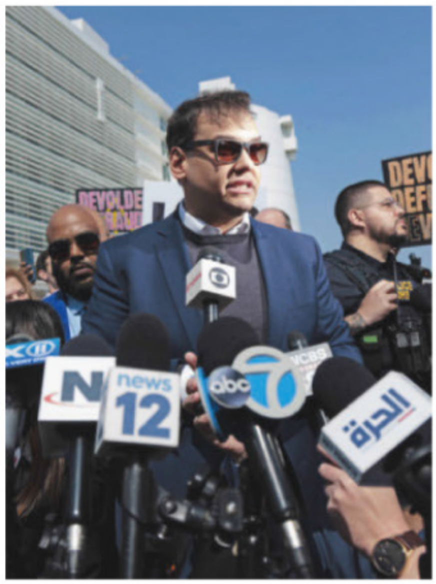
NEW YORK

What do George Santos, R. Kelly and FIFA have in common?

MELBOURNE, FLORIDA, a city on the banks of the Indian river, is a nice place to do business. Just ask George Santos. The impossibly industrious congressman from New York chose Melbourne as the headquarters for his company, Devolder Organisation, LLC, which, federal prosecutors allege, he used to defraud campaign donors. The Middle District of Florida, Melbourne's federal court, could have lassoed its jurisdictional powers onto this geographical hook. Instead, on May 10th, Mr Santos walked into a courthouse on Long Island. He pleaded not guilty to charges filed by the Eastern District of New York (EDNY), as so many extraordinary defendants have done before him.

EDNY's jurisdiction covers Brooklyn (where its main courthouse sits), Queens, Staten Island and Long Island—a diverse constituency of 8m people plus an international airport. Home-grown crimes abound. But the court's striking list of high-profile indictments reveals a prosecutorial wanderlust possibly unmatched by EDNY's 93 peer district courts.

"There are other prosecutors who will proudly proclaim 'The eagle doesn't fly'," says Seth DuCharme, former acting US attorney for EDNY. Brooklyn's eagle logs serious miles. Carlos Watson who ran Ozy, a scandal-ridden media company, lives in California. But from an inopportune outing Mr Watson took to the US Open, a ten- ▸▸



Go East

nis tournament in Queens, enterprising EDNY lawyers found legal jurisdiction, or "venue", to indict him for fraud.

R. Kelly, a singer convicted of sex abuse, committed most of his crimes in Chicago, but EDNY scored the first trial. Still further afield, the court has brought cases against Joaquín "El Chapo" Guzmán Loera, a Mexican cartel kingpin; Meng Wanzhou, a boss of Huawei, a Chinese firm; and FIFA officials from the Caribbean and South America. (Mr Watson of Ozy and Jack Warner, formerly of FIFA, deny wrongdoing.)

Newsworthy defendants are not easily quantifiable, but international terrorism cases are. In such investigations, venue is often unclear. There is no default court to try the murder of an American diplomat in Niger by a man from Mali, as was done in Brooklyn in 2016. Since 2003 EDNY's prosecutors have tried more international terrorism cases than any other district court, according to the Transactional Records Access Clearinghouse, a database.

In the 1990s, Brooklyn's well-heeled counterpart in Manhattan, the Southern District of New York, brought big cases against members of al-Qaeda, such as after the bombings of America's embassies in Kenya and Tanzania. After September 11th, Kelly Currie, the former deputy chief of the department overseeing terrorism investigations, says that a "sea change" in resources allowed EDNY to focus on disrupting plots. Prosecutors worked alongside FBI agents as they uncovered threats, travelling widely to chase evidence.

Mr DuCharme reckons he visited about 20 countries in his tenure; another former prosecutor, Zainab Ahmad, worked cases from at least 16. Another, Shreve Ariail, travelled to Sicily in 2011 after getting a tip that an al-Qaeda operative had turned up on a passenger ship from Libya. (EDNY ultimately convicted him for killing American soldiers in Afghanistan.) FBI agents around the country began to approach EDNY with their cases.

Brooklyn's reputation for treating the FBI almost like a client is one reason agents bring their high-profile cases to EDNY. Brooklyn alumni in Washington are inclined to tap their old colleagues who, according to an EDNY prosecutor, are "intensely motivated and creative", a description that could raise eyebrows.

Steve Vladeck of University of Texas's law school points out that, for a defendant like the al-Qaeda operative, the alternative venue used to be Guantánamo, which is surely progress. In fact, EDNY's success in prosecuting international terrorism in domestic courts strongly suggests that so-called national security courts need never exist. As for EDNY's hustle, Mr Santos harbours a similar complaint. The swift unfurling of his indictment, he protested, simply "makes no sense". ■



The pinball boom

Wizardry

CHICAGO

The growing appeal of scoring, shooting up and draining out

ON A TUESDAY night at Logan Arcade, a bar on Chicago's Northwest Side, Ian, a 57-year-old assistant manager, looks at the Rick and Morty pinball machine. "This is a frustrating machine," he says. He steps up and takes his turn—one of a group of four, including your correspondent—bashing the flippers to try to direct the ball into the garage of a model house with a flying saucer at the top. A screen above records the scores and shows clips from the cult cartoon show. When you hit the target, the show moves along. Ian's ball falls into the gutter. He sighs and shuffles out of the way for the next player. "I met the dude who designed this machine," he says. "They take a lot of learning. They're deep."

Twenty years ago, pinball seemed to be circling the drain. In the 1980s and 1990s video games stole market share from the mechanical sort, and home games-consoles stole market share from arcades. By 2000 WMS, the Chicago-based maker of the Bally and Williams brands of pinball machines, then the biggest manufacturer, closed its loss-making pinball division to focus on selling slot machines. Yet today, pinball is thriving again, both at places like Logan Arcade and in people's homes.

Sales of new machines have risen by 15-20% every year since 2008, says Zach Sharpe, of Stern Pinball, which became the last remaining major maker after WMS closed. "We have not looked back," he says. Next year the firm is moving to a new factory, twice the size of its current one, in the north-west suburbs of Chicago. Sales of used machines are more buoyant still—some favourites, such as Stern's Game of Thrones-themed game, can fetch prices well into five figures. Josh Sharpe, Zach's brother and president of the International Flipper Pinball Association, says that last year the IFPA approved 8,300 "official" tournaments, a four-fold increase on 2014.

What is driving the boom? Much of it is nostalgia. A generation raised on pinball in arcades now has disposable income, and kids with whom they want to play the games they played as children. Marty Friedman, who runs an arcade in Manchester, a tourist town in southern Vermont, says that he and his wife opened their business after he realised it would allow him to indulge his hobby. "I compiled a list of the games I felt were essential to a collection you would deem museum-worthy," he said, and went about acquiring them. But canny marketing is also drawing in fresh blood. Newer Stern machines are now connected to the internet, so players can upload scores to an online profile. Both Sharpes suggest that the mechanical nature of the games appeals to people bored with purely screen-based play.

A couple of generations ago many states banned pinball, seeing the machines as encouraging gambling. In some cities the mafia had a monopoly on servicing them. In 1940s New York City, Fiorello La Guardia, the mayor, went around smashing them with a sledgehammer. In the 1970s Roger Sharpe, the father of Josh and Zach, helped overturn the ban in the Big Apple by proving that the game was one of skill, not pure luck. Even now, in South Carolina, fans are still lobbying the state to lift a decades-old ban on people under 18 playing. Yesterday's teenage vice becomes today's wholesome family fun, as surely as a pinball eventually falls down the gutter.

American energy

Anoint my caverns

NEW YORK

The Strategic Petroleum Reserve runneth low

Sixty caverns extend deep into the subterranean salt that composes the substrate along much of America's Gulf Coast, at four sites, two each in Texas and Louisiana. They are huge; the typical cavern can hold two Empire State Buildings stacked atop each other. These caverns hold America's Strategic Petroleum Reserve (SPR), the world's largest stockpile of crude oil. All told they can hold 714m barrels, but today, after the largest-ever drawdown last year to stabilise oil markets in the wake of Russia's invasion of Ukraine, they hold just half that capacity—the SPR's lowest level in 40 years. On May 15th the Biden administration announced a 3m-barrel purchase for August delivery. But that is just the first step in a long, fraught process.

The SPR was born from crisis. In 1973, Arab members of the Organisation of the Petroleum Exporting Countries imposed an oil embargo on the United States and other Western countries in retaliation for supporting Israel during the Yom Kippur War. Gas prices shot up; fuel was rationed. Two years later, then-president Gerald Ford signed the Energy Policy and Conservation Act, which authorised the creation of a stockpile of up to 1bn barrels of oil. It has never risen quite that high, but at its peak, in December 2009, the SPR held 727m barrels. Pipelines carry oil into the SPR from around the country, and from it to nearby refineries.

The SPR is designed to respond to domestic and international supply disruptions, either through sales or, more frequently, exchanges. The former is straightforward: by either presidential or congressional directive, oil is sold at competitive auctions to the highest bidder. Big oil firms often use the latter. Much of America's refining capacity sits on America's natural-disaster prone Gulf Coast; when hurricanes halt or impede production, oil majors can request loans from the SPR, which they sometimes repay at a premium.

This much everyone agrees on. Where things get hairy is with the Biden administration's withdrawals—not just the 180m after Russia invaded Ukraine, but with the additional 70m barrels since Joe Biden took office in January 2021. That is more than any previous administration has taken. Republicans contend this was done for political purposes: "to cover up historically high gas prices in an election year," as Cathy McMorris Rodgers, a Republican congresswoman from eastern Washington, charged on the House floor.



Where it all goes

She introduced a bill to bar non-emergency SPR withdrawals unless an administration submits plans to open more federal lands for oil and gas drilling (it passed the House on a near-party-line vote; the odds the bill passing the Senate and Mr Biden signing it are about as good as the odds that the president sprouts wings). Republicans also claim the withdrawals "may have caused structural damage to the SPR's pipelines and caverns"; Sandia, the private company that monitors the SPR's caverns, says this is untrue, though Republicans have still asked the Government Accountability Office, Congress's nonpartisan watchdog, to evaluate the administration's management of the SPR.

For the moment, the refill price is right: West Texas Intermediate (WTI) was around $70 per barrel on Monday and the administration has set $67-72 per barrel of WTI—well below the 2022 average price of almost $95—as its target repurchase price. But uncertainties abound. Buying oil for future delivery may tempt producers when oil prices are low, as they are now, due in part to sluggish demand and industrial activity in China. But the International Energy Agency, an official forecaster, expects demand to rise steeply this year, even as supply is constrained.

That combination could send prices soaring, leaving the Biden administration with an uncomfortable choice: continue refilling the SPR and get pilloried for overspending; or delay, and face Republican criticism for endangering national security by leaving the reserve low. Environmentalists will doubtless grumble about spending on fossil fuels, though the SPR is probably too obscure to generate much political heat from the left. ■

Woke maths

AP > PC

SAN FRANCISCO

An unintended consequences lesson

San Francisco's school district was in trouble. Only 19% of tenth graders had passed the state maths exam and were not required to repeat a maths course. That number dropped further, to 1%, among black pupils. And so, in 2014 San Francisco decided to move Algebra I from eighth grade (about 13 years old) to ninth grade for all pupils, hoping that an extra year of maths would leave pupils better prepared.

Nearly ten years later, after much controversy, the first evaluation of the change was released in March by researchers at Stanford University. Disappointingly for both enthusiasts, who had hoped to improve racial equity, and detractors, who regarded the scheme as yet another attack on excellence by woke educators, it showed the programme had almost no effect.

"Our students...are most definitely NOT being served equally," said Richard Carranza, San Francisco's school superintendent at the time, back in 2015. "That will stop!" In response to a rhetorical question asking why no other district was doing something similar, he replied: "San Francisco always goes first, the rest eventually catch up."

The research provided bad news at a bad time–a lawsuit was filed against the policy on the same day of the study's release. In the class of 2018–the last class untouched by the reform–37% of pupils enrolled in calculus and statistics Advanced Placement (AP) courses, which allow pupils to earn college credit. In the next class, only 32% enrolled (a 15% reduction). Asian-American and Pacific Islander pupils were the most affected–and for the worse.

Some might interpret these results, and the subsequent backlash, as a reason to go back to square one. But the Stanford researchers caution against such conclusions. After the district offered accelerated courses and summer school, AP enrolment rebounded. Looking beyond AP maths also helps to see the bigger, and less gloomy, picture. More pupils earned advanced maths credits just below AP level, such as pre-calculus. And while all pupils earned more credits in probability and statistics after the reform, black pupils saw the largest gains. Offering AP maths in all of the city's high schools would be a good next step as San Francisco sorts through the mess.

Public lands

The other BLM

BOISE AND WASHINGTON, DC

Donald Trump's draining of the swamp has slowed the energy transition

A MEMORABLE SCENE in season one of HBO's hit series "The White Lotus" shows Tanya McQuoid (Jennifer Coolidge) asking her date how he got involved with the BLM, and why he decided to devote his life to activism. Greg Hunt (Jon Gries) is bewildered. Tanya, like many Americans, assumes that the initials stand for Black Lives Matter, an anti-racism group. "Black Lives Matter? I'm not involved in that," he replies. Now it is Tanya's turn for bewilderment. Finally, Greg reveals that he works for a distinctly different BLM: America's Bureau of Land Management.

The Bureau of Land Management (the BLM from here on) is not one of America's better-known federal agencies. It is just one of 11 bureaus within the Department of the Interior, and is responsible for managing 10% of America's lands, or more than 245m acres, mostly in the western states. It issues permits for development on the country's public lands. For a long time, that meant approving oil and gas drilling.

But under President Joe Biden, it increasingly means granting permits for renewable-energy projects. The Biden administration aims to approve at least 25 gigawatts of solar, wind or geothermal energy on federal lands by 2025, and so the BLM finds itself at the very centre of America's clean-energy transition. But the bureau will struggle to thrive in the limelight. When asked about the state of the BLM, current and former staffers describe an underfunded agency tormented by an increasingly difficult mission and hobbled by staffing shortages.

In 1976 Congress passed the Federal Land Policy and Management Act, or FLPMA. The agency was tasked with balancing extraction, recreation and conservation, in perpetuity. Land-use conflicts are multiplying as the agency tries to deploy renewables, protect critical habitat, respect tribal sovereignty and manage a boom in outdoor recreation all at the same time. "I've been in a lot of angry public meetings," says Linda Price, the BLM's field manager in Salmon, Idaho. "They don't get any more angry than when there's renewable energy involved."

Idaho is a case in point. The proposed Lava Ridge Wind Project in the state's Magic Valley, near a Japanese prison camp from the second world war, has united greens, history preservationists, tribes, local officials, ranchers and farmers in opposition. Not only are locals sceptical of these specific turbines; some reject the idea that renewables belong on public lands at all.

The BLM is used to getting beaten up at public meetings. But the listening tours needed to solicit local input and dispel disinformation take time. That is something America does not have in abundance if it wants to decarbonise fast enough to avoid the worst effects of climate change. Last month, for example, the BLM approved the construction of a high-voltage transmission line from Wyoming's High Plains to southern Nevada. The project was first proposed in 2007, but was delayed by a legal battle over whether the line could traverse ranchlands that were also protected habitat for the ever-imperilled sage grouse.

Grousing sagely

The bureau's broad mission also makes it vulnerable to big political swings. The Trump administration, for example, prioritised fossil-fuel development over other land uses. "The last administration didn't want you to even think about conservation," says Mary Jo Rugwell, who retired as the BLM's Wyoming boss in 2019. "It's hard for employees to make that pivot all the time," she adds wearily.

The second reason the BLM is struggling is because the agency was crippled by President Donald Trump's efforts to "drain the swamp". In 2019 Mr Trump announced that the agency's headquarters would move from Washington, DC, to Grand Junction, Colorado, ostensibly so the BLM's bureaucrats would be closer to the lands they managed. More than 300 jobs were reassigned to western field offices. Just 41 people moved and only three ended up in Grand Junction. The rest quit or retired.

Baby-boomer retirements and a national labour shortage aren't helping things. Tracy Stone-Manning, the agency's director under Mr Biden, argues that too few people, and the loss of expertise that accompanied the headquarters move, explain the BLM's inefficiency, not an over-onerous permit process. When your correspondent asked which projects had suffered for lack of bodies, Ms Stone-Manning was not picky. "I'd point to 120 projects that are waiting in line, they're literally sitting on desks," she said. "It's hard to say to a company 'See you in two years'."

It is not hard to find specific examples of pain caused by the labour crunch. Agents working on the Lava Ridge wind-farm proposal say the controversial project is sucking up all their time and resources. They want to hire more people to focus entirely on renewables. Farther north in Salmon, Ms Price is trying to prioritise. "If you doubled my staff, we would not run out of things to do," she says.

The BLM is dreaming of a bigger budget, too, and has asked Congress for more funding to hire nearly 500 employees. Its headquarters is moving back to the Beltway. But some of the bureau's far-flung agents think the agency's redemption will happen in the valleys and the mountains of the West, rather than in Washington. "The number and diversity of conflicts is growing," says Ms Price. "On the ground, in the little immediate field offices, we try to work through them one by one." ■



A poem in our eyes

Lexington | Democrats bus migrants, too

America's officials do not respect each other's borders. Time for Congress to step in



Only if parsed in terms of America's stammering, ad-libbed answer to desperate migrants could it make any sense: scores of men, from countries as various as Venezuela and Mauritania, find themselves in limbo together in the Crossroads Hotel on the outskirts of Newburgh, a pretty, frayed town in upstate New York. They are living on New York City's dime, but about 60 miles farther up the Hudson river.

Last summer the governor of Texas, Greg Abbott, began offering people who crossed the border seeking asylum free bus rides to New York City. New York's mayor, Eric Adams, blasted the tactic as inhumane and unAmerican. But in May, with the city's shelters full, Mr Adams began inviting migrants to catch buses northward.

Newburgh's new residents are making the best of it, using Google Translate to talk to each other and watching Netflix; some are bingeing "Welcome to Eden", a Spanish thriller about visitors to a place that is not the paradise it seems. As they wait for the government to decide if they merit asylum, they seem to have one big need. "I want to ask you something," a man from Senegal said softly to a stranger outside the Crossroads. "We are looking for work."

Oscar Eduardo Angula Rivas, who is 29, said he could make just $15 a month as a policeman in his native Venezuela. So more than a year ago he left his wife and baby son at home and walked for three months, dodging immigration patrols and predatory smugglers, before fording the Rio Grande and requesting asylum. Unable to work legally, he said he considered returning home, but as a police officer who had left his post, he would be in danger. Mr Rivas, a tall man with an aristocratic bearing, held himself together until he showed a picture of his son, now two. "It's difficult to leave your family behind," he said, taking off his glasses to wipe away tears.

Mr Rivas said he was robbed while living in a shelter in New York City, which he found crowded with migrants. He jumped at the chance when the city offered him a ride to Newburgh, believing it would be safer.

In sending his buses, Mr Abbott, a Republican, revelled in the politics, noting New York was a "sanctuary city" that claimed to welcome immigrants. But he was also trying to focus national attention on the crisis at the border. He has sent migrants off to Washington, DC, Chicago and Philadelphia as well.

Mr Adams has accused Mr Abbott, who is white, of targeting "black-run cities". But he has also excoriated President Joe Biden. In April he said Mr Biden had "failed" the city, and warned it was "being destroyed by the migrant crisis". More than 60,000 people seeking asylum have arrived in New York since last spring, only some on Mr Abbott's buses. Roughly 41,000 are in shelters operated or paid for by the city. It expects to spend $2.9bn caring for them in the year ahead, more than on its fire department.

In a twist on Mr Adams's accusation, upstate officials complain that the mayor, a Democrat, is targeting Republican areas such as Orange County, which includes Newburgh, and Rockland County just south of it. They say their shelters and schools are already strained by asylum-seekers who came on their own. Mr Adams is doing far more than Mr Abbott in promising to support the people on his buses for four months, but upstate officials wonder what will happen after that. They are suing to block the buses.

"We can't operate this way," says Thomas Humbach, the Rockland county attorney, who successfully sought a temporary restraining order to stop Mr Adams from sending migrants there. "You have jurisdictional borders, you have territorial borders for a reason, so that people can run their areas the way they think they should be run." Like Mr Adams and Mr Abbott, Mr Humbach believes the federal government should rationalise immigration rather than leave each state, county or city struggling to harden its own borders. Some New York officials also want expedited permission for asylum-seekers to work.

After Title 42, a pandemic-era border restriction, expired earlier this month, officials feared a surge of migrants. But new penalties for illegal crossings imposed by the Biden administration, combined with new mechanisms for receiving asylum requests, appear to have headed that off. Mr Biden, who has shifted to the centre on immigration as he runs for re-election, has come under criticism from his left for the restrictions and from his right as not being tough enough. The White House rightly says immigration reform requires action from Congress, where many representatives seem to prefer to have the problem to campaign on.

The real MAGA saga

If they would pause to weigh what has helped make America great, even before Queen Anne paid for Palatine refugees to settle Newburgh in 1709, they might consider the story of Melida Ramos, which began like that of Mr Rivas. Leaving a two-year-old son behind, Mrs Ramos left Honduras in the late 1980s and crossed the border with a coyote. She made her way to New York state, held down two jobs, and was later joined by her husband, who also crossed illegally. The couple was later able to gain legal status and bring their son, by then nine, from Honduras.

They had a daughter in America in 1992 and called her Genesis. Genesis Ramos is now the county legislator representing much of Newburgh, where she was born, where her family has lived and worked for decades. She is trying to make the asylum-seekers welcome, and is frustrated with the county officials who want them out, and, to a degree, with Mr Adams. She wonders if fewer people might be shouting hate at the migrants from passing pickup trucks if Orange County had been better prepared.

Ms Ramos's family does not talk much about their story. "It is tough, and it is something that I think folks are made to feel ashamed of," she says. "I'm not ashamed. Because I seriously cannot imagine the courage it had to take. And I'm proud of my mom for what she did." ■



Latin American left-wingers

A warning to the world

SANTIAGO AND SÃO PAULO

Latin America's politicians are among the most left-leaning on the planet. And they are scaring off investors

OVER THE PAST year or so a majority of Latin Americans have gone into a polling booth and put their mark next to the candidates who most represent change. As a result, left-wing presidents have come to power in Brazil, Chile and Colombia. They join a swathe of established left-wingers in Argentina, Bolivia, Mexico and Peru, and the autocratic left in Cuba, Nicaragua and Venezuela. Across Latin America, 12 of 19 countries are now run by left-wing governments. They represent 92% of the region's people and 90% of its GDP. This group is a diverse bunch. And yet they all promise big results. Can they deliver? As the world moves towards more state intervention, Latin America's experiment offers several cautionary lessons.

The region has tended to lean to the left in recent decades. Under the so-called pink tide from around 1998 to 2015, much of it was led by a mix of left-wing democrats and demagogues. Generous social handouts and redistributionist politics were backed by a commodities boom. Hugo Chávez, the autocratic left-wing president of Venezuela from 1999 to 2013, had the bravado—buoyed by plentiful oil revenues—to give Barack Obama, then president of the United States, a copy of Eduardo Galeano's "Open Veins of Latin America" in 2009. Mr Galeano's book, first published in 1973, rails against intervention in the region by the United States and institutions such as the IMF, along with "merchants, bankers, marines, technocrats, Green Berets, ambassadors and captains of industry". It became a bestseller.

→ Also in this section
30 Political chaos in Ecuador

Now the turn to the left is spurred by a sense that the region has fallen behind. The commodities boom has faded, and economic growth has stagnated. According to Goldman Sachs, a bank, annual GDP growth in the LA7 (Argentina, Brazil, Chile, Colombia, Ecuador, Mexico and Peru) averaged 3.4% between 2011 and 2013 and just 0.9% between 2013 and 2019. This year Goldman Sachs reckons it will be 1%. By comparison, the IMF predicts that East Asia will grow 4.3% this year. Over the past decade GDP per head in Latin America has remained broadly flat in real terms.

Inequality remains stubbornly high. "This is what characterises Latin America," says Carolina Tohá, Chile's interior minister. "It has achieved democracies with levels of inequality that would never have been possible in Europe."

When polled, many in the region say that they remain fond of globalisation. In Brazil, Colombia, Peru and Mexico a majority of respondents to a recent survey by Ipsos Mori, a pollster, say that it has benefited their country. Even so, voters are becoming less partial to democracy. This is particularly the case among the young. Those between the ages of 16 and 40 are more likely than their elders to think that there is no difference between a democratic system and an authoritarian one, according to Latinobarometro, a regional survey. In 2021 Colombia, Peru, Brazil and Chile were the highest scorers in the "System is Broken" index by Ipsos, which is based on respondents' statements such as "we need a strong leader who is willing to break the rules". Mexico and Argentina were also above the global average. (In the survey from 2022 sentiment in all those countries had slightly improved.)

One result of this low-growth disillusionment with democratic norms is a shift to the right. In El Salvador Nayib Bukele, a modern-day *caudillo* who has locked up 2% of the adult population in the past year in order to crack down on crime, is immensely popular. Before Brazil's recent left-wing turn, Jair Bolsonaro, a right-wing populist, was president from 2019 to 2022. Mr Bolsonaro lost the election to Luiz Inácio Lula da Silva, a left-winger previously in office ▸▸

Flatlining

1

Latin America, foreign direct investment inflows
As % of:



Source: UNCTAD

from 2003 to 2010, with just 1.8 percentage points between them. He still has plenty of supporters who think the election was stolen by Lula (as he is known). In Chile a recent election for a body to rewrite the constitution—an idea supported by Gabriel Boric, the 37-year-old social democrat who came to power last year—was dominated by a far-right party. But although the political pendulum swings back and forth, for now it seems the left is winning.

What do these left-wing governments want to do? Broadly, they want bigger government, with more state-owned firms, higher spending and a greater degree of intervention in the market. They all want to reduce inequality through higher taxes on the rich, bigger welfare systems and more state-funded health care. Unlike the earlier pink tide, protecting the environment is one area where these recently elected left-wingers tend to agree that far more needs to be done. The left-wing consensus is also becoming more protectionist and more determined to stop foreign exploitation of green resources, such as lithium.

Southpaw, not sinister

But there are huge differences. Andrés Manuel López Obrador, the president of Mexico since 2018, is an uneasy mix of left-wing rhetoric—talking of "hugs, not bullets" to deal with gangs—with fiscally hawkish policies. Although Mr López Obrador has criticised the central bank for high interest rates, he has generally let the bank get on with matters. Unlike the new crop of left-wingers Mr López Obrador is also far less bothered by climate change: indeed, last year he opened a big oil refinery in Tabasco, his home state, and has pursued a nationalistic and deeply un-green energy policy. He has tried to undermine the Supreme Court and the electoral body.

By contrast Mr Boric is far more concerned about democracy, social rights and the environment. He is one of the few left-wing politicians in the region to call out human-rights abuses in Nicaragua and Venezuela, and to steadfastly criticise Russia's invasion of Ukraine. Younger than most of his counterparts, his priorities are not shaped by socialist teachings. According to one of his close friends, he and his circle do not tend to read Karl Marx, but take their cues from social media.

Even so, like Mr López Obrador, Mr Boric is keen on nationalising Chile's vast lithium reserves. He is also fiscally responsible, mostly thanks to Mario Marcel, his finance minister and former head of the central bank. Government spending has been cut by about 25% in real terms, and the deficit has fallen from 7.5% of GDP in 2021 to a surplus of 1.3% of GDP last year. Chile is on course to be the only country in Latin America to go into a recession this year. Still, Mr Boric has not questioned the independence of the central bank.

Lula and Gustavo Petro, Colombia's first avowedly left-wing president, are flirting with the more radical end of left-wingery. When Lula was elected in 2002 his first term was marked by a fiscally cautious stance. Third time round—and after a stint in prison for charges of corruption, which he denies and which were subsequently annulled—he is unleashed. His pick for finance minister, Fernando Haddad, a long-time member of Lula's Workers' Party, initially spooked markets. But Mr Haddad appears moderate compared with his boss.

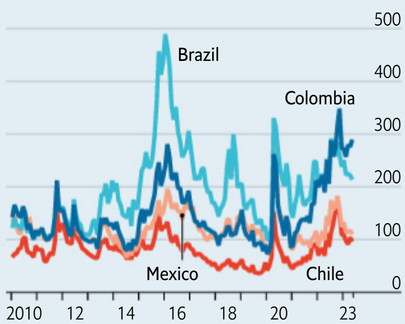
One of Lula's first acts as president was to reverse Mr Bolsonaro's plans to privatise various state-owned companies. He has said he wants to "change the logic" of tax in the county by raising the income-tax threshold, in order to exempt those who make up to 5,000 Brazilian reais ($1,015) a month from paying any (about 70% of the population). He also wants to increase the minimum wage.

In March Mr Haddad announced plans for a new fiscal framework which, though not as radical as investors feared, is more complex than the current rule, and is likely to lead to higher spending. Lula has repeatedly criticised the central bank for raising interest rates. On May 8th he tapped an ally to join the monetary policy committee,

The perils of populism

2

Five-year sovereign CDS* spreads, basis points



Source: IHS Markit *Credit-default swaps

Diversifying

3

Chile, foreign portfolio investment*, non-financial companies and households, $bn



Source: Central Bank of Chile *24-month cumulative investment

causing the Brazilian real to depreciate.

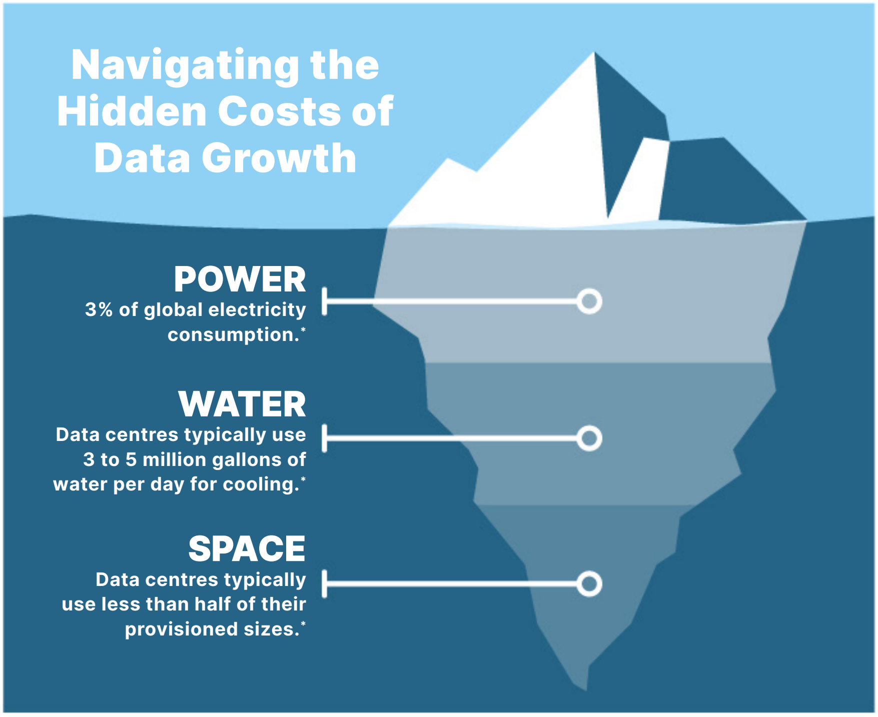
Mr Petro is more extreme. At the end of April he dissolved his cabinet and called for an "emergency government" after several members disagreed with aspects of his agenda, including boosting state intervention in the health system. He has also faced resistance towards his pension and labour reforms. Mr Petro replaced the cabinet, including José Antonio Ocampo, the moderate finance minister, with his allies. But he still faces opposition from Congress.

In order to fund higher social spending, Latin America needs higher growth. There is little sign of it picking up. Investment, one driver of rising living standards, is tepid. For the past three decades the region's share of global foreign-direct investment flows has declined (see chart 1). Red tape, inconsistent policies and volatile politics put off investors, though not all: in 2021 Chinese companies invested $6bn in Brazil, the largest amount since 2017, according to the China-Brazil business council.

Portfolio flows have fared a little better recently, as investors look for other opportunities away from eastern Europe or China. But even so, it is not the case "that Latin America is shining bright", says Alberto Ramos of Goldman Sachs. "More like: the darkness around it makes it a more interesting opportunity." According to the Institute of International Finance (IIF), an American trade association, non-resident portfolio investment in the region increased from 20% to 25% of all total portfolio flows to emerging markets in 2020-23, up from 15% to 20% in 2016-19. That can partly be explained by a move away from China along with an uptick in commodity prices because of the war in Ukraine, says Martín Castellano of the IIF. But it is still below the share between 2010-15, of 30% to 40% during the commodities boom.

One danger is that there is a financial blow-up. Risk spreads on debt in the region are generally tolerable. But in some cases they have risen, and in general they are slightly higher than in emerging markets in Asia (see chart 2). Colombia has clearly

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got worse, while Brazil is higher than it used to be. Mr López Obrador's fiscal conservatism has endeared the country to investors, particularly in contrast to Brazil. It helps that Mexico is also close to the United States, and so is well placed for American "friendshoring" of manufacturing jobs. Even so, many analysts suspect that Mexico is not benefiting as much as it would be if Mr López Obrador had not started his term by canning several big investments. In Chile, local investors are wary: since 2019 Chileans, who tended to invest at home, have preferred to take their money out of the country (see chart 3).

Another danger is that left-leaning agendas can morph into constitutional struggles—especially if fuelled by public mistrust of the status quo. In the most extreme case, in Venezuela, Nicolás Maduro, Chávez's hand-picked successor, has ridden roughshod over democratic institutions. Nearly 7m citizens have voted with their feet; those who have stayed are increasingly likely to be disillusioned with democracy. In Peru, Pedro Castillo, a left-winger elected as president in 2021, was booted out of the job by his cabinet after he attempted to shut down Congress before he could be impeached. (Several left-wing leaders, such as Mr López Obrador and Mr Petro, sympathised with Mr Castillo, and argue that he is the victim of a coup.) Since then, chaos has ensued, with most Peruvians clamouring for a new constitution.

Similarly, both Mr Petro and Mr López Obrador display worrying signs of authoritarianism. Rafael Correa, a former left-wing president of Ecuador, may be in exile, but his party helped cause a constitutional crisis there (see next story).

If these left-wing politicians fail, it could further stoke inequality and discontent. In Chile Mr Boric came to power after huge, and at times violent, protests in 2019. These were partly fuelled by dismay at the perception that, although GDP had grown over the past few decades, it had benefited elites rather than ordinary people. In reality, the proportion of those living on less than $3.25 a day (at 2017 purchasing-power-parity prices) had fallen from 36% in 2000 to 11% in 2020, and the Gini coefficient from 55 to 44.

And if they are voted out, their replacements could be worse. The recent constitutional election in Chile was won by the party of José Antonio Kast, an ultra-conservative politician who ran against Mr Boric in 2021. Mr Kast is an admirer of Augusto Pinochet, Chile's former dictator. He appeals to Chileans' increasing fear of crime. Similarly, in Argentina Javier Milei, a libertarian right-winger, is gaining popularity for his extreme views. If the new left-wingers lose support there are plenty of populists of different political stripes waiting to sweep up their votes. ■

Ecuador

A desperate measure

QUITO

Facing an impeachment vote, the president dissolves Congress

On May 17th Guillermo Lasso, Ecuador's conservative president, used a previously untried constitutional rule known as *muerte cruzada* ("mutual death") to dissolve the National Assembly, after it looked poised to impeach him. "I am obliged to respond to the political crisis in which the country is mired," he said in a nationwide address. He accused the National Assembly of having a "political project to destabilise the government, democracy and the state". Snap presidential and parliamentary elections will follow within 97 days. Until then Mr Lasso will rule by executive decree. The president started off by signing an order which lowered income taxes. He said this would help around half a million families.

The standoff between Mr Lasso and the National Assembly is only the latest iteration of a power struggle between the executive and legislative branches, which has frequently destabilised Ecuadorean politics. From 1997 to 2005, no elected president managed to serve out a full term. A new constitution, introduced in 2008 under Rafael Correa, a left-winger who was then president, made impeachment trickier. The trial against Mr Lasso has taken three months of wrangling.

Even so, the case appeared flimsy from the start. It was the second impeachment attempt against Mr Lasso by the National Assembly, which is controlled by the opposition. The constitutional court, which reviews any charges before an impeachment can proceed, discarded most of the accusations originally made against the president. These included operating a corruption ring at state-owned enterprises, the sale of positions in government and ties to Albanian drug gangs. Instead the court landed on a potentially iffy contract at the state oil-shipping company, Flopec. However, the deal in question was signed three years before Mr Lasso took office, under his predecessor, Lenín Moreno.

The driving force to unseat Mr Lasso was Mr Correa's party, Citizens' Revolution, which had the largest bloc of seats in the legislature. Mr Correa, who lives in self-imposed exile in Belgium, was convicted in 2020 in absentia of corruption (which he denies and calls "lawfare"). Even so, candidates associated with him won mayoral elections this year.

Mr Lasso has been unpopular for months, despite the fact that the economy is buoyant. Last year GDP grew by 3%, faster than the regional average. Inflation is low, at 2.4%. In December Ecuador completed an agreement with the IMF, the first in two decades, allowing it to retain access to cheap multilateral loans. But a crime wave related to drug-trafficking has seen the country's homicide rates race past those of Colombia and Mexico, to more than 25 per 100,000 people. The opposition has claimed that Mr Lasso's constitutional gamble is illegal. Protests are likely. But by guaranteeing elections relatively soon, the president may ensure that the country avoids the political violence that has beset neighbouring Peru. ■



Will his bet pay off?



Global summitry

Reviving the G7

TOKYO

Japan wants to bridge the gap between the G7 and the developing world

THE GROUP OF SEVEN (G7) began gathering after the first oil shock of the 1970s. In the ensuing decades the club of the world's largest rich democracies led the way on global economic policy. But its relevance faded as its share of the global economy declined. In 2009 Barack Obama, then America's president, declared that the G20, a broader grouping that includes China and other big developing countries, would become the pre-eminent forum; Donald Trump, his successor, went further, calling the G7 "outdated". In the past year, however, the G7 has found a new sense of purpose amid another crisis, emerging as a forum for co-ordinating assistance to Ukraine and sanctions against Russia.

Those tasks will top the agenda at the next leaders' summit, to be held on May 19th-21st in Hiroshima, the hometown of Japan's prime minister, Kishida Fumio. Combating Russian sanction-busting is a priority. Japan, whose laws bar it from supplying lethal military aid, will also take up the mantle of post-war reconstruction in Ukraine, drawing on its experience in rebuilding after natural disasters. In a city emblematic of the horror of atomic destruction, Ukraine would like to see the G7 send Russia a "clear message on nuclear threats", says Sergiy Korsunsky, Ukraine's ambassador to Japan. "It's important for the big guys to say no and draw a clear line."

Yet the G7's support for Ukraine has also shown up the distance between the rich and developing world on the war. Even if disturbed by Vladimir Putin's invasion, many poorer countries hesitate to condemn it forcefully and mainly grumble about its impact on food and energy markets. That discordance worries Japan, the G7's chair (and only Asian member).

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Japanese officials have therefore been on a listening tour ahead of the gathering in Hiroshima. In the past two months, Mr Kishida has visited Egypt, Ghana, India, Kenya, Mozambique and Singapore; his foreign minister, Hayashi Yoshimasa, toured Latin America. "In the midst of Russia's invasion of Ukraine, some global-south countries are facing great difficulties...there is also a movement to try to divide the world by taking advantage of such situations," says Mr Kishida in an interview with *The Economist* and other outlets, using characteristically careful language.

In private, Japanese officials and diplomats are blunter: the West is losing to China when it comes to outreach to the global south. The G7's relative economic strength has been declining, and with it the pull of the international order it represents: the club-members' share of global GDP in nominal terms peaked at nearly 70% in the late 1980s, but dipped to under 45% in 2021. In purchasing-power parity terms, the BRICS grouping, of Brazil, Russia, India, China and South Africa, has surpassed the G7's share (see chart). Japanese envoys reckon that the West is failing to convince many poorer countries of the benefits of the current order. They report hearing a litany of complaints about Amer-

ica from leaders elsewhere: concerning the tumult in American domestic politics; a lack of economic offerings in American trade policies; a lack of respect in American diplomacy. They fret that ruling elites in many developing countries are starting to prefer dealing with China, which offers more stability, more roads and bridges, and fewer lectures. In Japan's estimation, American preaching about democracy has been especially ineffective. "Liberal democracy has proved a poor rallying cry," says one Japanese official.

Japan hopes to tamp down the talk (favoured by President Joe Biden) of a battle between democracy and autocracy in favour of strong G7 support for the rule of law. Japanese officials reckon that standing for the inviolability of borders, rather than more nebulous values, will appeal to a wider range of potential partners and make clearer the benefits of an international system based on rules rather than raw power. It also avoids forcing countries into a binary choice, between liberal and illiberal powers, another Japanese official suggests: "We don't support creating new blocs."

Mr Kishida articulated that thinking in March in India, which is chairing the G20 this year and sees itself as the global south's leader. India is one of eight guests invited to observe the summit in Hiroshima, along with Indonesia, the current ASEAN chair; the Comoros, the African Union's chair; the Cook Islands, the Pacific Islands Forum chair; and Australia, Brazil, South Korea and Vietnam. Japan is trying to "expand whom we talk to, and how we talk to them," says Rahm Emanuel, America's ambassador to Japan. "The United States is 100% behind it in support of that."

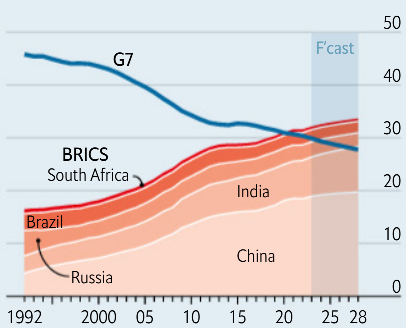
Japan also hopes to use this year's summit to connect the security concerns of the largely Euro-Atlantic G7 and the Indo-Pacific region. The meeting is "both a response to the war and a reminder of how to deter a future one," says Mr Emanuel. Mr Kishida has linked the fighting in Ukraine to China's threats against Taiwan. "The use of force to change the status quo must not be tolerated in any region, be it Europe or Asia." When the G7's foreign ministers met last month, they sought to project unified support for Taiwan in the wake of Emmanuel Macron's visit to Beijing, a trip that dismayed Japanese officials. The leaders' meeting in Hiroshima may produce a follow-up statement on a common approach to "economic coercion", or China's practice of using trade and finance to punish others for geopolitical defiance.

The summit thus reflects the diplomatic role—consensus-building and strategic—that Japan sees itself playing in a changing world. "Japan needs to bridge," says Jimbo Ken of Keio University in Tokyo. Japanese diplomacy is well suited to it, especially in the Indo-Pacific. Japan understands the region "much better than any other G7 member," says Bilahari Kausikan, a former senior Singaporean diplomat. It can help by "tempering the wilder flights of fancy" of other Western G7 members.

Yet Japan's measured approach has some downsides. Its officials talk about the rule of law "internationally but not internally", notes Sahashi Ryo of the University of Tokyo. Keeping quiet on rights abuses or democratic backsliding for the sake of coalition-building risks letting future problems fester. As Mr Putin has demonstrated, dictators unconstrained by pesky checks and balances at home find it easier to launch illegal attacks on their neighbours. And as Ukrainians have shown, standing up to those attacks is easier when there are clearly articulated and prized values, as well as territory, to fight for. ■

7down

GDP at PPP*, % of world total



Source: IMF *Purchasing-power parity

The Taliban and animal welfare

Pooches of the Panjshir

KABUL

The Islamist fanatics also castrate dogs

ANIMAL WELFARE was not considered a big priority for the Taliban when they rolled back into Kabul in August 2021. A Kabul-based animal-rescue charity called Nowzad, run by a former British soldier, created such a fuss in the British press that Boris Johnson, the then prime minister, permitted it to load 94 stray dogs and 68 cats onto one of the last flights out of the country. They were the lucky ones. Kabul's street-dog population ballooned as Afghans abandoned their pooches before fleeing the country.

"We found lots of well-trained, rare breeds in the early days," says Mohammed Ismail, a vet with another British animal charity, called Mayhew. When Kabul fell, Mayhew told its Afghan staff to stay at home. As a British organisation, it feared reprisals. It also assumed the Taliban hated dogs, which pious Muslims consider impure. But it was not long before Mayhew was asked by the Taliban to get back to work.

Every day at dawn, the charity sends its vets out with dog-catchers from Kabul's Taliban-controlled administration. Armed with giant nets, most days they nab about 60 strays, which they neuter and inoculate against rabies. After a few days' recuperation at the charity's facilities, the curs are returned to the streets. The Taliban mayor of Kabul is said to be delighted with this work. His administration recently chalked up Mayhew's vaccination of around 30,000 stray dogs as one of its successes.

Nowzad has also now returned to Kabul, where its activities include running a small-animal clinic. The Taliban have



Dog days in the Islamic Emirate

permitted the NGO to "continue with our mission objectives", says Nowzad's founder, Pen Farthing, a former Royal Marine. During his five recent visits to Kabul, he found the Taliban amenable and "always polite and friendly". He thinks the international community should stop shunning them. "They are back in power because we put them back in power," he suggests, a tad cynically.

Mayhew says it fully complies with the Taliban's rules, including an order banning NGOs from employing women. "It's awful," says Caroline Yates of Mayhew. "But we are first and foremost an animal-welfare organisation."

Thailand's election

Moving forward

SINGAPORE

Pro-democracy parties trounce the military establishment

POLITICS IN THAILAND has for years been defined by a battle between ardent royalists (known as "yellow shirts") and the red-shirted supporters of Thaksin Shinawatra, a tycoon turned populist-leader, now living in exile. The general election held on May 14th appears to have dramatically reshaped that struggle.

The big winner was a third force, Move Forward, a party of young liberal activists that campaigned on a promise to reform the monarchy and the armed forces, two institutions that have long dominated Thailand. Together with Mr Thaksin's Pheu Thai party, the other main pro-democracy outfit, Move Forward won 293 seats in the 500-seat assembly. The two main pro-military parties—including the United Thai Nation Party of the prime minister, Prayuth Chan-ocha, who seized power in a coup in 2014—won 76 seats. This promises to redefine Thai politics—as a fight between a growing majority, who want a fully democratic country, where the power of the monarchy and army is restrained, and a dwindling royalist minority.

Move Forward's leader, a 42-year-old Harvard graduate called Pita Limjaroenrat, has proposed forming a coalition government of eight parties, including Pheu Thai, which ran a close second. It had been expected to win the election: parties linked to Mr Thaksin, who was elected prime minister in 2001 before being ousted in a military coup, won every Thai poll between 2001 and 2019. Yet Pheu Thai's leader, Paetongtarn Shinawatra, who is Mr Thaksin's daughter, said she would be willing to join the coalition that Mr Pita proposed. It would exclude any party that supported the military government, and would control 313 seats in all.

Even so, forming a government won't be easy. Thailand's military establishment has rigged the system in its favour. Under the constitution that the ruling junta forced through in 2016, the senate has an outsized role in appointing the prime minister. To get around that, Mr Pita, a former executive at Grab, South-East Asia's answer to Uber, would need at least 376 seats in the lower house. Making matters harder for Thailand's pro-democracy camp, the country's constitutional court, electoral commission and anti-corruption commission are stacked with army loyalists.

Instead of blocking Mr Pita in the senate, the establishment might try to unseat him by more underhand means. This has happened before. Move Forward was founded in 2018 (under the name "Future Forward") by young, progressive Thais and promptly won the third-largest number of seats in an election the following year. Horrified by the party's proposals to shrink the size of the army, the Thai establishment banned its then leader from politics, charged him with lèse-majesté and disbanded the party. Last week saw possible groundwork for a similar ploy. A pro-military candidate filed a complaint with Thailand's electoral and anti-corruption commissions alleging that Mr Pita had failed to adequately declare his ownership of a particular stock. The Move Forward leader denies any wrongdoing.

The military government has earned its rebuke from Thailand's 52m voters. In almost a decade of its rule, the country's economy has failed to keep pace with its neighbours, including Indonesia and Vietnam. Thailand has also forfeited its erstwhile reputation for regional leadership; the junta has ignored a proposed regional peace plan for war-torn Myanmar. Move Forward has some admirable ideas, beyond constitutional and defence reform, to tackle these problems. The party wants to dismantle monopolies in many industries, from alcohol to agriculture. It also wants to establish a humanitarian corridor along Thailand's 2,400km border with Myanmar and supports the regional peace plan.

The army establishment, backed by the monarchy, will not concede its defeat easily. It may take weeks before a new government is declared. It may take even longer for Thais to obtain the vibrant democracy they voted for. But this election looks like a turning-point. For the first time in a long time, Thais have reason to feel more hopeful about their country's future. ■



Pita's winning patter

Karnataka's election

Modi blues

BANGALORE AND MANGALORE

The Bharatiya Janata Party bombs down south

NARENDRA MODI was anxious to retain power in Karnataka. In the week before the affluent southern state's assembly election on May 10th, India's prime minister addressed 19 public rallies and six road shows across it. Keeping a "double engine" of Bharatiya Janata Party (BJP) government, at the state and centre, he argued, was the best way to preserve Karnataka's booming economy—which has seen average annual growth of nearly 8% over the past decade.

Yet Mr Modi's party was crushed. It won only 66 of Karnataka's 224 seats. The opposition Congress party won an absolute majority, with 135 seats, having secured the highest vote share of any party in the state for 34 years. As Congress activists celebrated, after a decade of almost relentless losses to the BJP, Mr Modi's Hindu-nationalist supporters licked their wounds.

With a general election due in May 2024, the result is a big blow to Mr Modi and his party. Karnataka, which has 68m people, was the only southern state under BJP control. Beyond its status as India's fifth-biggest state economy, Mr Modi's party had looked on Karnataka as a potential launch-pad for a southern expansion that would justify the BJP's claim to be a genuinely national force.

Richer and less populous than the Hindi-speaking north, India's southern states are home to its technology sector and much of its manufacturing. The fact that they have proved averse to the BJP is therefore painful for the ruling party. It undermines not only its national aspirations, but also its claim to be the party of economic growth, as well as Hindu pride.

By exploiting a toehold in Karnataka's growing Hindi-speaking population—especially in the fast-expanding tech capital of Bangalore—Mr Modi had hoped to overcome that weakness. Faced with local concerns in Karnataka about corruption, unemployment and poor infrastructure, the BJP resorted to its usual Muslim-baiting. Its state government imposed a ban on Muslim students wearing the hijab in school. It floated a possible ban on halal meat. It scrapped a quota of state positions reserved for economically disadvantaged Muslims and proposed handing them to members of two influential Hindu castes.

Karnataka's voters were underwhelmed. Their state, like the south generally, has seen less communal conflict than north India, despite some Hindu-Muslim ▶▶

tensions on Karnataka's coast. So the BJP's divisiveness appears to have struck many as a northern imposition they could do without. This failure leaves the BJP without a toehold in the south. Despite its dominance of national politics, it controls only half of India's 28 state governments.

The result is a corresponding fillip for Congress. After a long decline, India's former party of government and its allies now control only seven states. Yet this victory will suggest to its bruised activists that Mr Modi is not unbeatable. Indeed, given the prime minister's energetic campaigning, his personal aura of invincibility—a feature of his personality cult—has taken a particular knock. Congress's campaign strategy in Karnataka, which involved attacking the BJP's governing record and largely ignoring its Muslim-baiting, also looks like its best hope of advancing elsewhere. At the least, its success in Karnataka may burnish the party's credibility as a force to unify the national opposition.

Even so, there is little reason to expect a national turn against Mr Modi and his party. Karnataka's voters have a strong tradition of anti-incumbency: they have not re-elected a government in four decades. Given that record, the BJP's vote share held up remarkably well. Most of Congress's increased tally came at the expense of a third party, Janata Dal (Secular), which will play no significant role in next year's general election. And despite retreating in some parts of the state, the BJP appears to have made gains in Bangalore and southern Karnataka. There is nothing here to augur defeat for Mr Modi and his party in next year's election. To the contrary, his prospects of winning a third consecutive term look almost assured. ■

Banyan Foundered on Myanmar

South-East Asia's leaders cannot agree on what to do about its conflagration

Ahead of the Buddhist new year in Myanmar last month, a few hundred locals congregated one morning in Pa Zi Gyi village in Sagaing region, in the country's Buddhist heartland. It was supposed to be a happy event to mark the opening of a new office of the dissident national unity government, which opposes the military junta that seized power in early 2021. The new administrative centre promised to bring a semblance of normality to the war-torn country: taxes would be processed and town meetings held. Then a fighter jet screamed overhead, dropping bombs. A helicopter fired rockets. At least 100 people were killed, including 40 children. Another day's work by the vicious junta of General Min Aung Hlaing.

Since the Tatmadaw, as Myanmar's armed forces are known, ousted its elected government, more than 1.3m Burmese people have been displaced and over 30,000 killed in fighting between the army and its opponents. Nearly half of Myanmar's 54m people live below the poverty line, more than double the number before the conflict began. Just this week the Tatmadaw took advantage of the devastation wrought by a cyclone, which killed dozens, to launch yet more attacks on its enemies.

Such atrocities demand a regional response. Yet Myanmar's neighbours are paralysed over what to do about the conflict. This was illustrated at a summit of the ten-country Association of South-East Asian Nations (ASEAN) in Labuan Bajo, Indonesia, on May 10th. For the second year running, Myanmar's generals were not invited to the gathering of ASEAN leaders. The conflict was nonetheless prominently in mind; a few days earlier, a convoy carrying aid to displaced Burmese villagers, and also Indonesian and Singaporean diplomats, was attacked. Yet Indonesia's president, Joko Widodo, who is chairing ASEAN, declared that no progress had been made on ASEAN's draft peace plan for Myanmar. Its conflict has become the regional bloc's gravest crisis since its founding in 1967.

ASEAN's members appear utterly divided over the issue. The more democratic countries of Indonesia, Malaysia, the Philippines and Singapore are more critical of Myanmar's junta than the authoritarian rest. A memo leaked after ASEAN's latest discussions confirmed that some countries want to invite the junta back to the club's meetings because "the time for isolation has served its purpose".

Thailand's ruling ex-generals, who also seized power in a coup, have coddled their Burmese counterparts. Thailand, which shares a 2,400km-long border with Myanmar, thus started separate negotiations with the junta late last year. Cambodia and Laos have done the same, straining unity around ASEAN's diplomatic boycott. China and India, Myanmar's giant neighbours, have also pursued their interests by engaging with the ruling thugs, thereby compounding the mess.



China has moved closest to the junta. Earlier this month Qin Gang, China's new foreign minister, became the highest-ranking Chinese official to visit Myanmar since the coup—it was his only South-East Asian pit-stop in an itinerary that also included India and Pakistan. These countries, notes Yun Sun of the Stimson Centre, a think-tank in Washington, are all strategic priorities for China. In Myanmar it aims to protect its investments and seek new ones.

Economic advantage, says Jason Tower of the United States Institute of Peace, is more important to China than ending conflict. So is strategic advantage. Myanmar affords China access to the Bay of Bengal, the Indian Ocean and an alternative to the choke-point of the Malacca Strait, the main route through which most of China's ship-bound energy and trade has flowed. China has poured over $21bn into a China-Myanmar Economic Corridor involving roads, railways, pipelines and a port.

Beyond promoting China's economic projects in Myanmar, Mr Qin used his visit to advertise a Xi Jinping-era foreign-policy mantra—"community with a shared future for mankind"—that puts economic development above individual rights (not that the junta cares about either). The Chinese foreign minister also rattled off other slogans to promote a world in which like-minded big powers such as China and Russia determine the security arrangements of their neighbours while rallying countries against the West. As China's influence grows and ASEAN's fragments, the interests of ordinary Burmese who want to attend town-hall meetings slide ever further down the ladder of regional priorities.



China in space (1)

A new mandate in the heavens

TAIPEI

Why China fears Starlink—and why it wants to build its own satellite constellation in low-Earth orbit

Beware of Starlink, says the People's Liberation Army (PLA). The mega-constellation of satellites, designed to provide off-grid high-bandwidth internet access, is run by Spacex, a private American firm. But officials in Washington are surely taking advantage of it, warns the *Liberation Army Daily*. When Starlink was made available to Ukraine last year, after Russia's invasion of the country, the army's newspaper called it an "accomplice" of the "hegemony-obsessed US". Never mind that it was Ukraine that asked Spacex for help.

Starlink has been vital to Ukraine's war effort. The satellite links have allowed soldiers to communicate, identify targets and upload videos for the world to see. The system is hard to jam. From the perspective of China, this not only puts its friend Russia at a disadvantage, it also raises concerns about Taiwan, the self-governing island that China claims. If Taiwan were given access to Starlink, it would make a Chinese invasion that much more difficult.

But China's concerns go beyond that. It fears that America, through Starlink, is gobbling up territory in low-Earth orbit. China, too, wants to be a power in this domain. And it wants the capabilities offered by systems like Starlink. So it is working on a version of its own.

Cutting the cord

When it comes to Taiwan, analysts think China, were it to invade, might start by severing the 14 undersea internet cables that keep the island connected to the world. Taiwan is adding cables and planning how to defend their landing points. But it is also testing antennae in 700 locations, including some outside Taiwan. These would be able to send and receive signals by means of satellites in low orbit, like the ones Starlink uses. The goal is to make the antennae "as mobile as possible" to survive an attack, says Tzeng Yisuo of the Institute for National Defence and Security Research, a think-tank in Taiwan.

China has the capability to shoot down satellites. But Starlink is made up of over 4,000 of them and aims eventually to have tens of thousands. China might have more success leaning on Spacex's founder, Elon Musk, to deny Taiwan access to Starlink. Mr Musk's other big firm, Tesla, has a large factory in Shanghai. Last year he suggested giving China some control over Taiwan in order to resolve their dispute. (Spacex lists Taiwan as a place where Starlink is "coming soon", but the firm has not applied to operate there on a commercial basis.)

Unsurprisingly, Taiwan is looking to reduce its dependence on others. Its space agency is developing its own low-orbit communication satellites. The first is expected to be launched in 2025.

China's low-orbit ambitions are much larger. In 2020 the government filed papers with the International Telecommunication Union, a UN body, for a 12,992-satellite constellation. A year later the government established China Satellite Networks Group Limited and tasked it with developing satellite internet. At least seven state- ▸▸

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— Chaguan is away

owned and private Chinese companies are building satellite factories, with the expectation that they will soon be able to produce several hundred small communications satellites per year.

Officials in Beijing have developed a space-race mentality. Specific orbits and radio frequencies are "rare strategic resources" that Starlink wants to "monopolise", warned the *Liberation Army Daily* in 2022. Last year Wu Yansheng, the chairman of China's main space contractor, said his country needed to move faster in becoming a "space power". In April the prime minister, Li Qiang, toured three startups in order to highlight the importance of their industries. One was Galaxy Space, a maker of satellites, six of which were launched into low orbit last year.

Much of the recent activity stems from the desire of Xi Jinping, China's supreme leader, to modernise the PLA. His generals have long studied how America uses communications and information tools to move faster and see more clearly on the battlefield. Mr Xi wants to create a highly "informatised" force, one that is able to use information technology to conduct joint operations across the ground, air and sea—not to mention space and cyberspace.

The crowded sky

China will have plenty of neighbours in low orbit beyond Spacex. The British government owns a stake in OneWeb, which is about to finish a constellation involving 650 satellites. Kuiper, a planned constellation bankrolled by Jeff Bezos, the founder of Amazon, is due to launch its first test satellites soon. The EU is planning its own system, as is Russia. For the world's powers, satellite internet may come to be seen as a strategic capability, much like satellite navigation, necessitating some level of sovereign control.

Spacex has an important advantage. Satellites in low orbit don't last very long, so the company replaces them on a regular basis. That entails a large number of rocket launches (one is pictured on the previous page). Spacex has the world's best system for that, the partially reusable Falcon 9 rocket. Now it is working on a much larger, fully reusable spacecraft called Starship which could launch hundreds of satellites at a time. Some Chinese companies appear to be trying to build knock-offs.

All of the activity worries China. The *Liberation Army Daily* complains that there is only room for 50,000 satellites in low-Earth orbit and that Starlink may eventually take up more than 80% of that space. But the calculation is not that straightforward, says Juliana Suess of the Royal United Services Institute, a think-tank in Britain. Imagine low orbit as a highway, she says. What needs to be calculated is how many moving cars that highway can safely accommodate. Much will depend on the size of satellites and their trajectories.

In 2021 two satellites from Starlink were on a collision course with a Chinese space station, forcing it to move. So says China, at least. America denies the allegation. It is possible that the two powers use different methods to calculate orbits, says Benjamin Silverstein of the Carnegie Endowment for International Peace, a think-tank in America. They might also have different views on what is too close for comfort. What is clear is that a lack of communication exacerbated the problem, as did a lack of norms surrounding traffic in low orbit. America and China used to talk about these things, but there have been no such meetings since 2017. That's dangerous. As low orbit gets more crowded, the chance of a nasty collision is growing. ■

China in space (2)

Don't look up

BEIJING

China is unusually secretive about its space programme

NINE MONTHS after being secretly launched into orbit, an uncrewed Chinese spacecraft touched down at a spaceport in the Gobi desert on May 8th. Not much is known about the mission. A terse report from state media called it an "important breakthrough".

The Chinese spacecraft may be similar to one developed by the US air force, called the X-37B, which has spent over 900 days in space in one stretch. Both were launched by rockets, but can land like a normal plane. Reusing spacecraft saves money. Such vessels can also help conduct scientific experiments or release satellites. While in orbit, China's spacecraft discharged a small object.

The secrecy surrounding the mission is partly understandable. Many governments are coy about their space activities—especially ones with potential military purposes. America has limited the release of information surrounding the X-37B. But China is more secretive than most when it comes to space.

Take the country's Tiangong space station, which has an ostensibly scientific purpose. Since its completion in October, China hasn't been very forthcoming about its astronauts' activities there. When two of them went for a spacewalk on March 30th, it was announced after the fact. No details were given. The International Space Station, by contrast, flags all spacewalks in advance, then live-streams them.

Given the prestige at stake, officials may be inclined to hide failures. In 2021 China landed a rover called Zhurong on Mars. In May of last year it went into a planned hibernation for the Martian winter, when there is less sunlight to power it. Zhurong should have woken up in December. It was not until April that Chinese scientists explained that a build-up of dust had stopped the sun's rays from restarting the rover.

Sometimes China's secrecy is more alarming. The modules that make up the Tiangong were brought into orbit by a series of rockets. Pieces of these rockets then fell back to Earth. While much of the debris burned up on re-entry, some hit the Earth's surface. No one was hurt. But America's space agency, NASA, complained that China did not share data about the falling material to help other countries assess the risks.

Part of the problem is that the People's Liberation Army runs China's spaceports and its crewed space missions. So it is difficult to distinguish between China's civilian space activities and its military ones. (Space technologies themselves are often dual-use.) China's rivals tend to assume the worst. In January the head of NASA, Bill Nelson, warned that China might start claiming lunar territory "under the guise of scientific research".

Around the same time, the European Space Agency said it would not be sending astronauts to the Tiangong, as previously planned. That is probably a result of tensions back on Earth. Has the notion of decoupling extended to space, too?



He's not revealing much



Xiongan

The city of Xi

XIONGAN

The president tries to give his pet project a boost

SIX YEARS ago, when China unveiled its grandiose plan to build a new metropolis 100km south of Beijing, it was hard to envisage the finished product. Ambitious planners promised a "first-class international city" covering 2,000 square kilometres, nearly three times the size of New York City. The "Xiongan New Area", as it is called, would be a green, ultra-modern annexe to Beijing, easing pressure on the congested capital, where more than 21m people live. But at the time Xiongan was just a sprawling expanse of scrubby lowlands and shabby villages.

When your correspondent visited recently, it was still quite difficult to discern the city's future outlines. A handful of projects, including a gleaming high-speed rail station, are complete. The horizon is dotted with construction cranes working to finish other buildings. Proper highways now connect Xiongan to Beijing and Tianjin (see map). But good roads between the three counties that make up Xiongan—Anxin, Rongcheng and Xiong—have yet to be built. The place looks more like a construction site than a city on a par with Shenzhen, the built-from-scratch business hub to which it is often compared.

China's supreme leader, Xi Jinping, appears a little defensive of his pet project. During a visit to Xiongan on May 10th he insisted that the plan to build it was "entirely correct" and praised the progress made so far as "miraculous". He also called for officials "to firm up confidence and maintain resolve". Mr Xi did his own part by dragging along three other members of the Politburo Standing Committee, China's top leadership body. Reports in state media made it clear that he remained personally involved in the endeavour.

That will help counter a vague sense of flagging momentum. The project's launch back in 2017 was covered extensively by state media. An official statement hailed the development as a "strategy crucial for the next millennium". Speculators flocked to the area to buy up whatever property was available, leading to an emergency freeze on sales. More recently, though, Xiongan has drawn far less attention. The pandemic, of course, did not help. An official set of guidelines issued in 2021 described Xiongan as a provincial-level project, leading to speculation that it might even have been downgraded (it had not been).



There has been plenty of scepticism surrounding the plan. Official comparisons to Shenzhen and Pudong, Shanghai's glittering financial district, make little sense, say critics. Those places were granted much freedom to create a market-oriented environment in order to attract foreign and domestic businesses. Mr Xi has said Xiongan should have similar aspirations. But he also sees it as part of his "common prosperity" agenda, which has spooked entrepreneurs and investors. Many of the entities being pushed to move from Beijing to Xiongan, such as "non-essential" government departments and state-owned enterprises, are not exactly sources of dynamism.

A number of institutions have resisted moving. At a top university in Beijing, a professor recounts the efforts undertaken by different departments to remain in the capital. But during his visit to Xiongan, Mr Xi signalled that he wants the relocation process to speed up. He talked vaguely of improving incentives. (Promises of a 30-minute train journey between Xiongan and Beijing seem to have little effect.) New inducements could include tax breaks, bonuses or guarantees of educational opportunities for the children of people who move from Beijing or Tianjin, says Ming Gu, an economist at Duke Kunshan University. But these risk creating inequalities between the migrants from those cities and newcomers from less privileged areas.

On troubled water

As people move to Xiongan, another problem might arise. Like much of northern China, the city has scarce and often polluted groundwater. Experts worry that there will be shortages of clean water once Xiongan is developed and populated. Yet flooding is also a threat to the low-lying region. One such disaster, in 1963, is thought to have killed thousands in the area.

Mr Xi describes Xiongan as a "city of the future". The big question is when that future will begin. Construction costs have already exceeded 540bn yuan ($78bn). It is expected to cost about as much to finish the job. The relocation phase of the project is slated to last until 2035. By 2050 Xiongan should have developed into "a modern socialist city", if all goes to plan. With luck, Mr Xi, who is 69 and probably ruler for life, may just live long enough to see his pet project through to the end. ■

Award Sue-Lin Wong and David Rennie have won the Asia Society's Osborn Elliott Prize. Ms Wong was recognised for her work on our eight-part podcast series, "The Prince", which chronicles Xi Jinping's rise to power. Mr Rennie was honoured for his special report on how China is attempting to reshape the world order.



Iran

A power project

Iran's proxies are a powerful force in the Middle East but a recent altercation with Israel has exposed their limits

As Israeli aircraft pounded the beleaguered Gaza Strip for five days, starting on May 9th, officials in Jerusalem were at pains to point out that they were targeting only the Palestinian Islamic Jihad militia (PIJ). This is a small radical group funded by Iran, which had been firing rockets at Israeli towns. Israel's strategy was clear. It wanted Hamas, the larger Islamist movement that controls Gaza, to stay out of the fight. This is because it has a much larger arsenal of rockets, many provided by Iran, which can paralyse life in Israel much more effectively.

The strategy worked. Hamas stayed on the sidelines until a ceasefire was brokered by Egypt. Israel hopes that it has driven a wedge between two Iranian allies on its borders. The deal has set back Iran's efforts to use its proxies to advance its regional ambitions and to attack—albeit indirectly—its chief enemies: Israel and America.

Iran's proxies have always been a key part of its push to assert itself as a regional force. Since the early 1980s, groups backed by Iran such as Hizbullah, a militia-cum-party in Lebanon, and the Badr Organisation in Iraq have played big roles in the Islamic Republic's foreign policy. It has also projected its power through its support for the Houthis, who have menaced the Saudis in Yemen, as well as Hizbullah and the Palestinian factions.

Iran's proxies both fulfil the ideological mission of exporting the Islamic revolution and serve as tools of diplomacy and coercion, says Behnam Ben Taleblu of the Foundation for Defence of Democracies, a think-tank in Washington, DC. They have become ever more relevant as Israel's relations with its neighbours have improved through the Abraham accords, whereby in 2020 it agreed to establish formal ties with four Arab countries.

Israel has largely succeeded, through persistent air raids, in denying Iran a permanent military foothold in Syria. It has, however, failed to prevent Iran's proxies, Hizbullah and Hamas, from building up sizeable arsenals in Lebanon and Gaza. These may not represent an existential threat to Israel. But they do pose enough of a danger for it to have sought unofficial truces with them. In three of Israel's recent operations in Gaza, it has not targeted Hamas. Likewise, since the end of its war in 2006 with Hizbullah, the two seem to have agreed that though they can confront each other in Syrian territory, they will refrain from doing so in Lebanon.

There are limits, anyway, to the power of Iran's proxies. "Ultimately Hizbullah and the other Shia militias were not enough to save Assad in Syria," says Raz Zimmt, an Iran-watcher at Israel's Institute for National Security Studies affiliated to Tel Aviv University. Iran had to deploy its own forces and in 2015 begged Russia to help prevent Syria's regime from falling. In Yemen, too, although Iran's supply of missiles and drones helped the Houthis harry the Saudis and their allies, some of the more sophisticated attacks, such as the ones on the Saudis' oil-processing facilities in September 2019, are believed to have been carried out by Iran itself. ▸▸

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While proxies such as Hamas welcome their benefactor's support, they also have their own agendas. These do not always align with those in Tehran. Such groups naturally consider their own local constituencies' interests. So they are not always prepared to do Iran's bidding. In recent weeks Israel has exploited this dynamic in Gaza. Iran wants its Palestinian clients there to act as a constant thorn in Israel's side. But as Israel's most recent strikes make clear, that is not necessarily to the good of the local population.

Like the PIJ, Hamas gets funds from Iran. Unlike the PIJ, however, it is responsible for actually running Gaza. It also hopes one day to lead the broader Palestinian movement. As a result Hamas is split when it comes to Iran. Some members openly support the Islamic Republic. Others, including Yahya Sinwar, Hamas's chief in Gaza, are trying to stay less obviously aligned. Israel has encouraged this division by somewhat relaxing the blockade it has imposed in Gaza, with Egypt's co-operation. It has allowed 20,000 day-labourers to enter Israel, where they earn desperately needed money. Because Mr Sinwar is loth to jeopardise this, he is reluctant to join the joint command structure Iran seeks to establish for its proxies on Israel's borders.

The biggest weakness of Iran's proxy strategy lies closer to home. As the country's economy teeters, investing scant resources in arming foreign militias is feeding resentment among Iranians. And ironically, though its proxies have been central in Iran's foreign policy, its position in the Middle East has been bolstered by more conventional means. On March 10th Iran agreed to restore diplomatic ties with Saudi Arabia, hoping this will go some way to ending its economic isolation. Still, others will keep up the pressure against Iran as long as it destabilises the region elsewhere. Rather than enhance Iran's geopolitical might, the proxies risk becoming a major obstacle. ■





America in the Middle East

Behold now behemoth

BEIRUT

America's new embassy in Beirut hints at the nature of its role in the region

IN THE HILLS above Beirut, cranes swing above a vast new American embassy. Covering more than 43 acres, it will be the second-biggest diplomatic outpost in the world, surpassed only by America's embassy in Baghdad. It is set to cost $1bn, about the same as the United States' mission in London, the costliest the country has ever built. The immenseness of its scale suggests America has no plan to abandon its role in the Middle East. But it also highlights the superpower's difficulties.

The new embassy in Beirut will be surrounded by towering concrete walls and barbed-wire fences. "Is that an embassy or a military base?" asked people on Twitter when photographs of the development were shared. Like the existing embassy, it sits in Akwar, a leafy suburb, far from the city centre. Security is plainly the dominant factor, as it now is across the world. Even in London, considered a lot less dangerous than capitals such as Baghdad or Beirut, a moat runs around the embassy. America's ten-storey embassy in Cairo, built in 1980, is now surrounded by a cordon of concrete blast shields.

America's emphasis on security when it comes to building embassies has its roots in Lebanon. In April 1983 the Islamic Jihad Organisation, a forerunner of Hizbullah, bombed the American embassy in Beirut. The attack killed 63 people and destroyed much of the building. Next year Hizbullah set off a car-bomb that killed 23 people at an annex of the embassy. Those attacks prompted America to focus overwhelmingly on security when designing and building its embassies.

That principle was codified in 1985 by Bobby Ray Inman, a recently retired admiral, in a report for the State Department. It included a series of guidelines for American diplomatic buildings and for those working in them. The facilities, it was argued, should be located within a single, well-defended perimeter far away from heavily populated areas.

The threat of terrorism is a real problem for American embassies, says Elliott Abrams, a former assistant secretary of state, but the isolation and fortress-like appearance of American embassies give a bad impression. And local Beirutis do not expect to benefit from the new edifice. "People from the embassy don't buy things here," says a chemist whose shop abuts the site. "They bring everything with them—they fly it in by helicopter."

Suspicion of America already runs deep in the Middle East, so cutting its diplomats off from the local populace hardly improves things, especially in places such as Egypt, Jordan and Lebanon, where relations with America have generally been friendly. Nowadays embassy staff are barred from using public transport or living outside official residences. It is a real loss, says Mr Abrams, if American diplomats cannot travel freely within the country or mix with the locals. The size of the new embassy in Lebanon suggests a worthy commitment to remain engaged in the Middle East. But the diplomats who work there will need to find a way to sally beyond its walls. ■

Class and coaches

Big deals on the bus

KAMPALA

Africa's middle classes hit the road

THE UGANDAN traffic officer slid back the door of the 14-seater taxi to find 20 adults, four children, and a squashed *Economist* correspondent. "Why are none of you complaining?" she asked, peering into the tangle of limbs. Indeed, nobody had said anything as the conductor had delayed departure to stuff his minibus beyond legal limits. And now they kept quiet as the policewoman ordered the excess passengers to disembark. A mile down the road, with the cops out of sight, the evictees squeezed back in again, having hitched a ride on tactically positioned motorbikes.

The policewoman's question is pertinent. Why should African travellers put up with discomfort and delay? Shared taxis and intercity buses routinely leave hours late. Most passengers tolerate bad service with surprising equanimity. But some of them are starting to demand a better one—a sign of rising incomes and the changing economic value of time.

Public transport in Uganda often tests patience. Your correspondent once sought a ride from a taxi park in Lira, a northern town. "Hurry, hurry," urged a tout, steering him towards a packed vehicle with a revving engine. Ten minutes later, with the taxi still motionless, a passenger stepped out to "buy a soda" and never returned. A quarter of an hour passed, and another did the same, then another. It eventually became clear that almost all the "passengers" were paid stooges, enticing customers with the illusion that the taxi was full and ready to leave.

The answer to the policewoman's question is given by Huzairu Lubega, who manages a bus company. Buses with fewer than 45 passengers cannot cover the costs of fuel and maintenance, he says, so they wait for hours for extra travellers. The only way to leave on time would be to raise the price of tickets. Passengers accept delays because they understand this trade-off, and are too pinched to pay for a faster service. When most people are hard up, late departures are the market equilibrium.

But as incomes rise, so does the opportunity cost of waiting around. In January Global Coaches, which runs to the prosperous city of Mbarara, launched an "executive" bus service in response to customer demand. Travellers pay a third more than the usual fare in return for air conditioning, larger seats, folding tables and complimentary water. Even better, the bus leaves on time. "You know the schedule so you can plan your day properly," says Pius Mugabe, an engineer with a window seat. Without wishing to sound "fancy", "you are seated with people you can relate to".

This kind of premium service is already well established in wealthier African countries. Some Kenyan bus companies offer an earthbound version of the airline experience, replete with on-board Wi-Fi, refreshments, a "business-class" section and cavernous VIP seats. Their customers are not the moneyed elite, who are chauffeured about in oversized Toyota Prados. Instead, they are an emerging class of salaried workers and small-businesspeople who cannot afford to drive but still have meetings to attend on time.

Scholars have spilled much ink debating the size of the African middle class. Some definitions are so broad as to encompass almost anyone who is not living in poverty. Others count only the affluent minority who live a Western lifestyle. But another way to understand class is through the subtle markers of social distinction. Just look for a punctual departure and a bit of leg room. ■

Flying to Nigeria

Grounded funds

Fed up with waiting for their cash, international airlines may fly away

INTERNATIONAL AIRLINES with bases in Nigeria are looking hopefully at the inauguration of Bola Tinubu as president on May 29th, since their fate may rest in his hands. They want the country's new chief pilot to tell the central bank to let them have their cash. Of the $2.2bn in airlines' blocked funds across the world, the wodge stuck in Nigeria, almost $800m, is the biggest, says the International Air Transport Association (IATA). That figure has doubled since September. Nigerians are frequent flyers, thanks in part to their huge, helter-skelter diaspora, but, unless the bank acts fast, frustrated airlines may make it harder for any of them to get anywhere at all.

Dwindling oil revenues, meagre exports and currency interventions have drained Nigeria's foreign-exchange coffers. The central bank must decide how to parcel out scarce cash. Every fortnight or so it promises airlines a morsel of all the dollars their accumulated revenues in naira should equate to, at an exchange rate almost 50% less advantageous than its official one. Even then, it does not guarantee when the pledged money will arrive. KLM, the Dutch carrier, which has been flying to Nigeria for 75 years, is waiting for funds promised in September. Emirates, fed up with waiting for an estimated $500m, pulled out last year, despite the popularity of its route.


We're leaving, but where's the jet plane?

In 2022 about 3.5m people flew in and out of Nigeria. Once a profitable route, it should have offered airlines an opportunity to recoup lockdown losses. "It should be lucrative, but it's not if you can't get your money," says IATA's Willie Walsh. Airlines have to keep paying interest on their own debts, even as they chase the arrears they are owed.

A manager at one of Nigeria's leading banks notes that some airlines unlawfully sell tickets in dollars within the country. Others are taking on more cargo. Faced with the prospect of reducing its Nigeria-bound flights, KLM resorted to selling only the priciest of tickets to Nigerians and as a last resort increased its prices in naira to make up for the added risk. But passengers grumble that they are being fleeced.

As carriers run out of tricks, more may leave. Rising jet-fuel costs and other levies are obstacles enough. Every so often the central bank gives a "special allocation" of funds to placate rankled airlines as a temporary reprieve. The aviation minister has called for patience.

In the long run larger airlines may be able to absorb the losses, but Nigerian passengers will be certain to lose out. Unless Mr Tinubu's crew finds a way to replenish reserves and disburse the cash, foreign flyers may stop coming. "We're not talking years here," says Mr Walsh. "We're talking months and weeks."



Africa's debts

Seeing red again

DAKAR, JOHANNESBURG AND KAMPALA

Some of the continent's brightest economic stars are in serious trouble

A YEAR AGO Ghana's finance minister, Ken Ofori-Atta, eschewed talk that his country would need a bail-out from the IMF. Ghana had at that point been in and out of 16 IMF programmes since attaining independence in 1957. "We have forgotten how difficult and tenacious that master from Washington was," he said.

Yet now Ghana is entering a $3bn, three-year programme. The IMF's board approved it on May 17th, based on assurances from Ghana's bilateral creditors, including China, that they will restructure its debt. Ghana will get a first tranche of $600m immediately, though further infusions will probably require progress on cutting its debt burden. Zambia, which like Ghana is in default on its sovereign loans, has struggled to agree to detailed terms for restructuring its debt. But it hopes to achieve a deal next month.

Ghana and Zambia highlight the pivotal role that China and private creditors have begun to play in restructuring the billions of dollars in debt owed by African countries—and the need for closer co-operation among China, Western creditors and multilateral financial institutions. The two distressed borrowers also point to a new period of austerity in Africa, where the ratio of public debt to GDP has soared.

This austerity will have a big impact on African economies and domestic politics. African attitudes to the rest of the world will be shaped by whether outsiders, especially the West and China, are seen to be helping or hindering progress.

Post-independence Africa has endured two periods of rising debt levels. The first was in the 1980s and 1990s, which led to a crisis that eventually resulted in big write-offs by rich countries. It was exacerbated by weak commodity prices and slow economic growth. Average real GDP per person in Africa shrank in both decades.

The second period of rising debt was in the 2000s and 2010s, when African countries looked beyond aid and cheap loans from multilateral institutions. From 2007 to 2020, 21 of them borrowed on global capital markets, many for the first time. China's financiers lent $160bn to African governments from 2000 to 2020. Domestic capital markets were increasingly tapped, too. Between 2010 and 2020, African government debt that is held domestically increased from an average 15% of GDP to 30%.

African politicians stress that borrowing was needed to invest in schools, clinics and roads. Many borrowed too much, or misspent the proceeds. One Zambian source recalls that in 2014 officials sought to sell only a $500m Eurobond (a bond in a currency other than your own) but yield-hungry investors coaxed them into doubling the issuance. "We did it because we could," he says.

Now politicians oversee austerity because they must. Public debt as a share of GDP reached an average of 56% in sub-Saharan Africa in 2022, the highest level since the early 2000s, exacerbated in part by covid-19 and Russia's invasion of Ukraine. That may not look high by rich-world standards, but it is barely affordable in Africa, where interest rates are much higher. Moreover, 40% of Africa's debt is denominated in foreign currencies, making countries prey to the vicissitudes of exchange rates. This year sub-Saharan African countries' spending on servicing external debts (both interest and principal repayments) will reach 17% of government revenues, the highest level since 1999, according to Debt Justice, a British NGO.

That leaves less for everything else. In 2010 the average sub-Saharan country spent 70% more on health per person ($38) than on external debt ($22). By 2020 spending on debt service was 30% higher.

Though most African countries face austere times, the debt crisis is less homogenous than in the early 2000s. This time countries fall into one of three categories, says Greg Smith, an emerging-markets fund manager and author of "Where Credit is Due", a book on African debt.

The first, "emerging Africa", encompasses a few of the continent's richer countries, such as Mauritius and South Africa. These are still able to borrow on capital markets, though at higher rates. The second group, comprising more than 30 countries, is "poor or prudent Africa". These are either too well-run to have racked up high debt levels (eg, Botswana) or too badly run to have attracted mainstream commercial creditors (many of the rest). While many in this group face rising debt-servicing costs, bailing them out would be relatively cheap and straightforward.

"Frontier Africa"—the third group—is where things get tricky. The approximately 15 countries in this set include many of Africa's most promising economies. Yet they have been largely shut out of Eurobond markets for almost a year, as a result of their own mounting fiscal pressures as well as rising global rates. Mr Smith calculates that they need to borrow about $30bn a year to service existing foreign debts.

The two "frontier" countries that have already defaulted show how resolving this era's debt crises will be more complex than the first. Start with Zambia. After Hakainde Hichilema (pictured) was elected president in 2021 his government quickly won the trust of the IMF, which agreed to a $1.3bn programme. But releasing all of this money depends on creditors taking a hit. This makes it a test case of the Common Framework, a blueprint introduced by the G20 in 2020 for restructuring debt by a diverse group of creditors, in particular commercial bondholders and China.

China is the cause of delays in Zambia, which defaulted in late 2020, argue Western officials. Zambian officials hope that a deal will be reached next month. But they are impatient. "We've done [our bit] in a ve-

ry short period of time. But the Common Framework is failing to deliver… and that's frustrating," says Situmbeko Musokotwane, Zambia's finance minister. "The power rivalry" between China and the West unduly complicates matters, he laments.

China, whose banks hold more than a third of Zambia's external debts, had insisted that if its institutions were to take losses on their loans, so should the World Bank and the IMF. Yet in recent talks about debt restructurings in general, China has dropped this demand in exchange for multilateral institutions making grants or concessional loans to countries that receive debt relief, said Ceyla Pazarbasioglu, a senior executive at the IMF.

"China will accept additional concessional aid for Ghana in lieu of [multilateral] haircuts," says Bright Simons of Imani, a think-tank in Accra, Ghana's capital. The World Bank is preparing a $900m lending programme over three years alongside the IMF's bail-out. However, Ghana may not be a demanding test case, as it owes China far less than Zambia does.

Who's to blame?

China does more to help than is often assumed, argues Deborah Brautigam, a scholar of China-Africa relations. During the pandemic, she says, it accounted for 63% of the $13.1bn in debt rescheduled by creditors to the 46 countries taking part in a scheme known as the Debt Service Suspension Initiative.

China is far from the only headache for debt-laden African countries. Before it defaulted last year, Ghana had almost as much domestic debt as foreign debt. As a result the IMF insisted that Ghana restructure its obligations to domestic creditors before it could get a bail-out. Local banks have had to write down the value of their bonds by almost a half, damaging the country's financial sector.

Another challenge is private foreign investors, who hold about $13bn in Ghanaian bonds (compared with $1.9bn owed to China). Getting their agreement will not be easy, especially as exemptions for some domestic creditors leave external ones with a greater burden. Mr Ofori-Atta has also told external bondholders they need to take bigger losses than bilateral creditors.

Even if Africa's other "frontier" countries avoid default, they are still in trouble. Kenya recently failed to pay civil servants on time. "Salaries or default? Take your pick," said David Ndii, an economic adviser to President William Ruto.

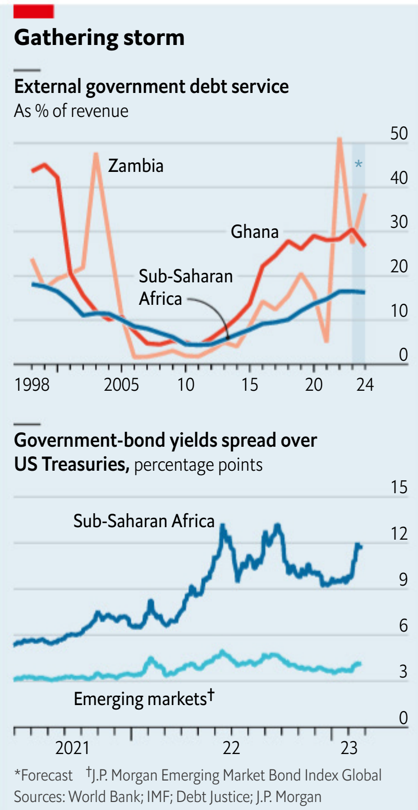
Ethiopia, Africa's second-most populous country, has been mostly shut off from aid and capital markets since descending into civil war in 2020. As in Ghana, Nigeria and other countries, its government has borrowed extensively from its central bank, weakening the currency and fuelling inflation. Now that the war appears to be more or less over, it wants help from the IMF before a $1bn Eurobond payment falls due at the end of 2024.

In Nigeria debt service, mostly domestic, took up a staggering 96% of government revenues last year. Part of the problem is that the government has collected little money from oil recently due to rampant oil theft, low production and the cost of fuel subsidies, which are deducted before oil proceeds reach the treasury. Bola Tinubu, Nigeria's incoming president, promises to fix the oily mess, but so have many past presidents of his country. Even in better-run places, debt service is chewing up government revenue. In Ivory Coast and Senegal it accounts for about one-quarter of revenue.

Ideally, economic growth would allow Africa to escape the squeeze. But the outlook is gloomy. In April the IMF cut its growth forecast for sub-Saharan Africa in 2023 to 3.6%, only about one percentage point higher than population growth. Austerity may well slow growth further.

Development wonks often tell African countries to raise more tax. The median sub-Saharan country gathers tax revenues worth 13% of GDP compared with 18% in other emerging economies and 27% in rich countries. Despite the nagging, this has barely increased in a decade.

How can Africa plug the gap? Across the region 21 countries have borrowing arrangements with the IMF; more will follow.



Gathering storm

External government debt service
As % of revenue

Government-bond yields spread over US Treasuries, percentage points

*Forecast †J.P. Morgan Emerging Market Bond Index Global
Sources: World Bank; IMF; Debt Justice; J.P. Morgan

But other sources of cash are drying up. Chinese loan disbursements to Africa have fallen to about 10% of their peak in 2016. Between 2012 and 2021 international aid to sub-Saharan Africa amounted to 3% of the region's GDP, down from 4% in the previous decade. Eurobond markets may reopen, but interest rates will be higher than in the 2010s. The lowest Eurobond rate obtained by Ghana—continental west Africa's richest country by GDP per person—was 6.4%. It will be tough to find investments that generate the returns to pay back, in dollars, loans at higher rates.

The new austerity will shape African politics. Most "frontier" countries are democracies. Economic discontent has already led to changes in government in Zambia and Kenya, where civil unrest flared again recently. Ghana's elections next year will be a referendum on the ruling party's economic management.

Democratic deficit

Mr Hichilema, Zambia's president, worries that democracy in Africa itself is at risk. In an article earlier this year he argued that the political and civic reforms he has introduced would matter little when his people continued to suffer from the economic mismanagement of his autocratic predecessor. "You can't eat democracy," he concluded, in a warning to those who hold Zambia's fate in their hands.

African attitudes to the rest of the world could harden, too. The "structural adjustment programmes" of the late 20th century were resented in much of Africa. Today, amid economic hardship, African frustration with Bretton Woods institutions and their Western patrons is rising again. China, meanwhile, could lose its mostly benign image, should it be seen as holding economies to ransom.

Afrobarometer, a pan-African pollster, has found that views of America and China are turning sour. In surveys conducted in nearly 30 countries in 2022, 51% and 49% of respondents said respectively that China and America were good influences in their country. These shares were down by ten and 11 percentage points from 2019.

A sense of "plague on all their houses" could deepen if Africa suffers from geopolitical rivalries. The IMF recently found that sub-Saharan Africa was the region most at risk if the West and China decoupled into two different trading blocs. In a "severe scenario", after 10 years the GDP of a typical country in the region would permanently be 4% lower than otherwise, a larger hit than the global financial crisis.

Africa is richer and more democratic than in the 1980s. Its policymakers are savvier. Yet global forces are making it harder to escape the new squeeze. This time will indeed be different. All the same, it could still be very painful. ■

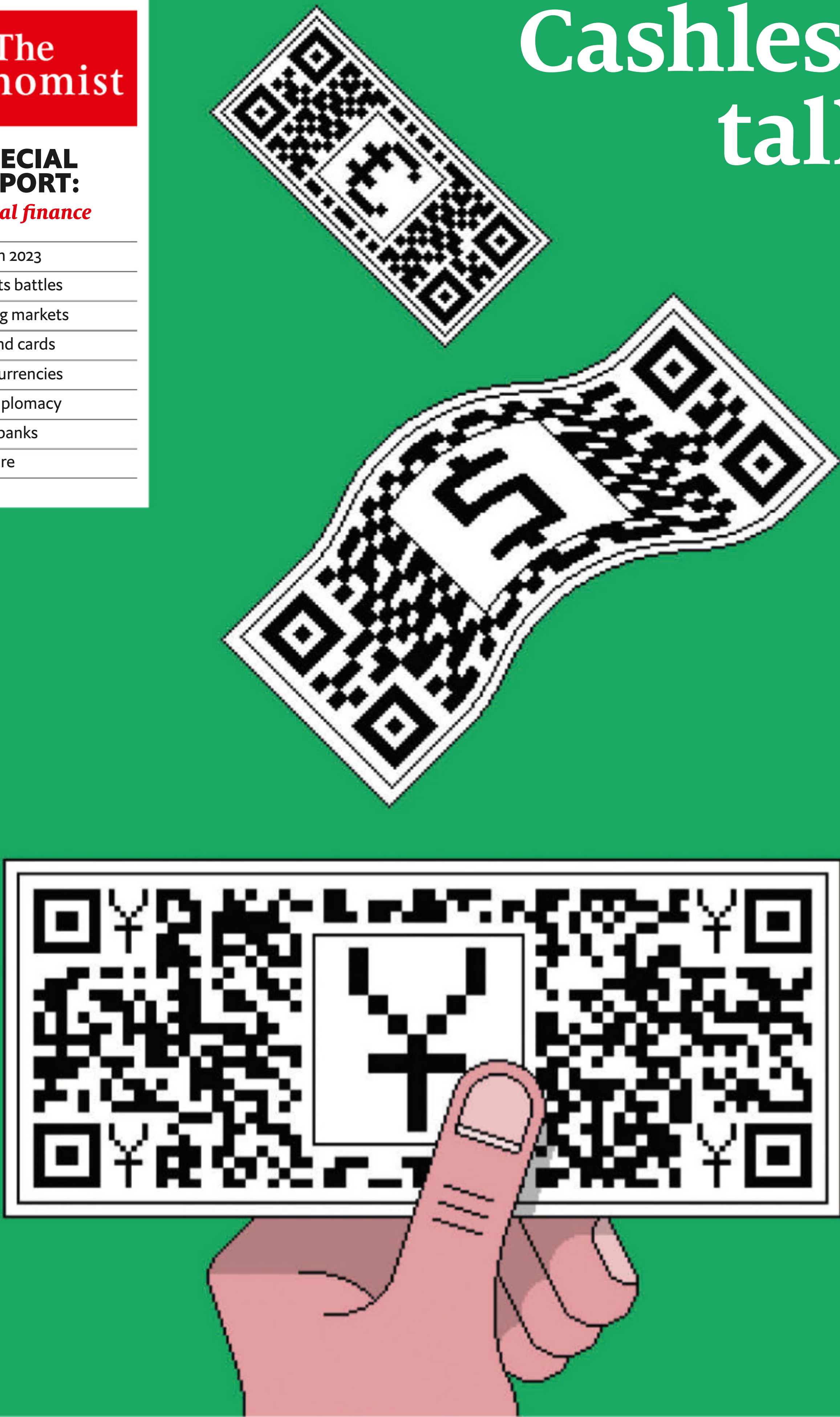
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SPECIAL REPORT:
Digital finance

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Cashless talk



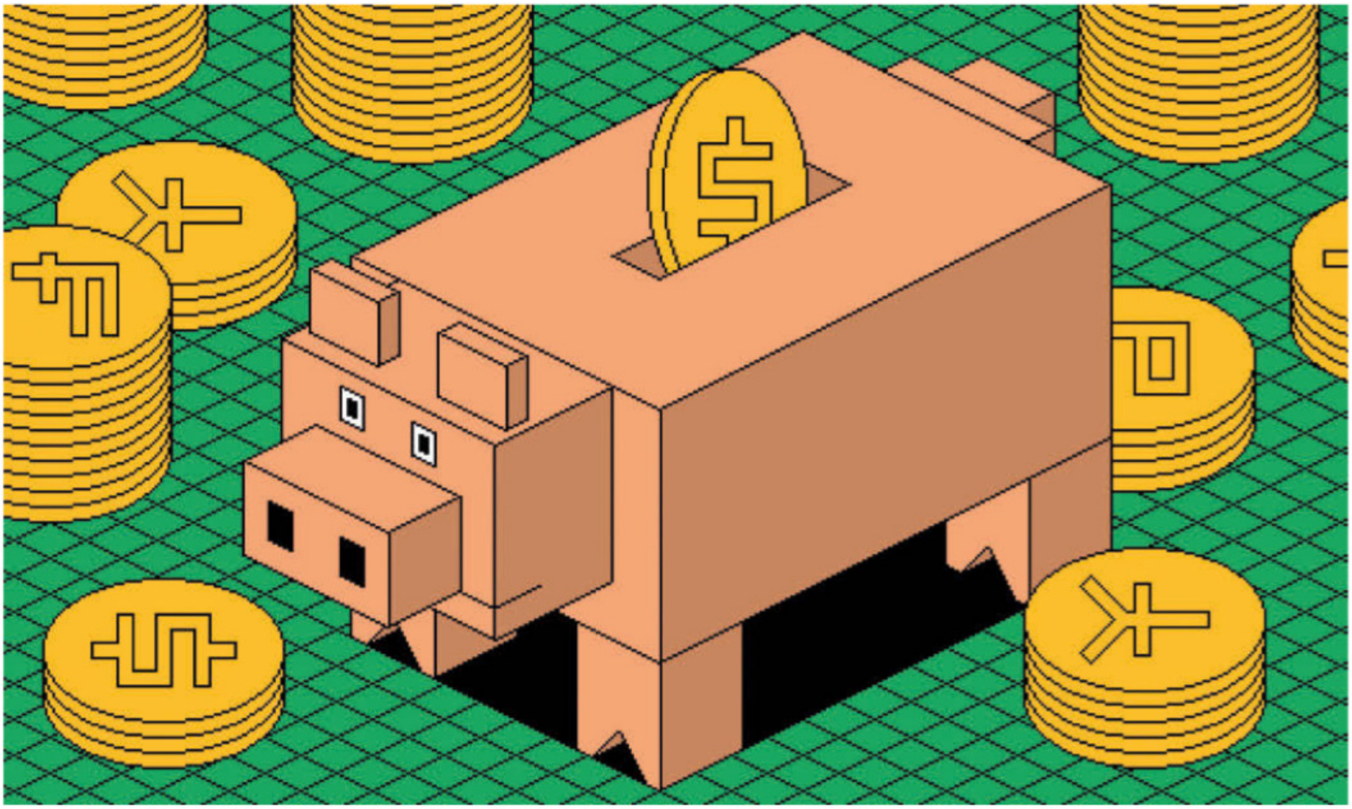


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The great rewiring

The fight over payments systems is hotting up around the world. There may be surprising winners, says Arjun Ramani

Payment is one of the most fundamental economic activities. To buy anything, you need something the seller wants. One option is barter, but that is beset by friction (what are the chances of having something your counterparty wants at any exact moment?). Early forms of money, from cowrie shells to beads to metal coins, offered a solution: they were always in demand to settle transactions. But they came with their own problems, from counterfeiting and delay to not having enough when needed (illiquidity). The use of credit for trade, first recorded in Mesopotamia five millennia ago, changed the game. It provided immediate liquidity, boosting commerce, but it also required trust and verification, introducing a fresh set of issues.

For centuries humans have mostly used physical objects, including cash, to transact. Banks were originally meant merely to safeguard commodities such as grain, rather than being linked to consumer payments. Later, cheques became tied to bank accounts. The first credit cards (Diners Club in 1950) and cards with magnetic stripes (American Express in 1971) started a broader shift away from paper money and cheques for retail payments. But they were mostly limited to developed economies and to affluent customers of banks, still the central nodes of finance.

Now a new wave of digitisation, driven by the arrival of smartphones and the internet, is changing payments systems again. By making possible near-instant, remote payment, it massively reduces friction in the movement of money. This both facilitates trade from a distance and leaves a clear auditable trail. Digitised forms of payment can also become a basis for the provision of broader financial services, an especially important change in poorer countries with less developed financial systems.

The arrival of digital-payment platforms promises to create new kings of the highly lucrative global payments system, which recorded some $2.1trn in revenues in 2021. Out with lumbering banks, expensive credit cards and grimy physical cash, it suggests. Instead, in with flashy crypto protocols, seamless fintech wallets and even digital central-bank money. Some of the excitement around this has been excessive. But this special report argues that the system of moving money around is indeed undergoing massive change. The share of cash-based transactions is plummeting, having fallen by an average of 25 percentage points in the world's main markets from 2011 to 2021. Emerging economies are seeing some of the biggest drops (see chart on next page). Digitisation is a big part of this shift away from cash.

Various systems are emerging around the world, each with its advantages and drawbacks. And it is not always new fintech firms, digital newcomers or fancy cryptocurrencies that are leading the rewiring. Often, it is a combination of state-led systems and incumbent banks that are adopting new technology. Thus in India and Brazil, new state-sponsored payment platforms have become the dominant forms of non-cash payment, bringing hundreds of millions of previously unbanked citizens into the formal financial system. In the West the bank/card model has, despite its fintech challengers, remained largely intact even as digitisation takes ▸▸

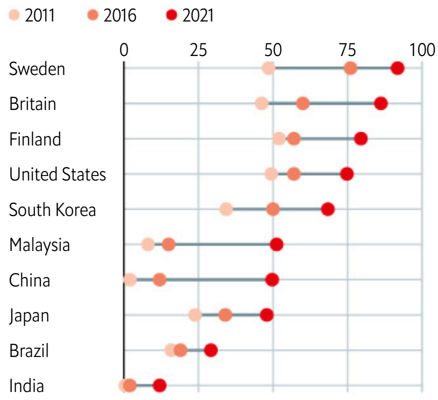
hold. China's closed fintech apps and new settlement system may yet spread across Asia and also reduce the region's dependence on the dollar.

There are big implications in all this for relations between money and the state. Some governments may be using digital finance to help police their own people. The West may find that the spread of digital-payment platforms means it loses some financial clout. Frictionless movement of money may make for greater efficiency, but it could foster financial instability by making it easier for customers to withdraw bank deposits, a lesson seen in the failure of Silicon Valley Bank, which was preceded by a bank run.

The digital march

Non-cash payments as % of all transactions

By volume



Source: McKinsey Global Payments Map

Just as with any new technology, digital finance has had its share of hype. But modern digital-payment platforms are clearly challenging the old order. Traditionally banks were the entry point to formal finance. Now payments through apps that use QR codes, fast payment networks and high-speed internet connections have become the gateway for many. As users begin sending and receiving money, the data that such platforms collect can help unlock other financial services such as loans and insurance.

A good example is China's Alipay, initially an escrow service for Alibaba's e-commerce platform. Before this, notes Jack Poon of Hong Kong Polytechnic University, "You had to go to a street shop to buy video-game points in-person." Alipay, which drew inspiration from the servicing of eBay by PayPal, a payments firm, boosted e-commerce by using smartphones and QR codes to scale up fast. Along with its counterpart WeChat Pay, it now processes some 90% of Chinese digital payments. "People look at you funny if you try to pay with cash," notes Mr Poon.

A payments upheaval

As the world started going increasingly cashless, and with record-low interest rates making money in effect free, a frenzy erupted around digital finance in the summer of 2020. Hundreds of new crypto protocols were launched, and many earned interest on crypto-deposits of 20% or more at seemingly no risk. The market value of the cryptosphere grew to $3trn in 2021. China's Ant Group, a payments and lending firm, began gearing up for a blockbuster listing at an expected valuation of over $300bn. By summer 2021 PayPal was worth around $350bn, putting it close to JPMorgan Chase, the world's biggest bank, and Visa, the largest card network (then valued at $450bn and $520bn, respectively).

However the frenzy proved short-lived. The market chaos of the past year, triggered by rising interest rates and the fallout from Russia's invasion of Ukraine, has humbled many digital challengers. The first market to correct was China itself. In November 2020 the Chinese government halted the planned flotation of Ant Group. It was a forewarning of what was to come. The market value of all cryptocurrencies has dropped by nearly three-fifths since its peak in 2021. *The Economist* estimates that the world's 100 largest public and private fintech firms have seen their collective market value cut by half since then.

Yet despite these market ructions, three lasting changes have emerged from the upsurge in digital finance and new payments platforms. First, the debate in richer countries over whether crypto or fintech firms will end the reign of banks and card networks has been all but settled. Crypto has shed its go-getting reputation, and is struggling to demonstrate its usefulness. Whizzy fintechs will doubtless keep growing. But the old bank/card model has adapted better to digitisation than many who predicted revolution expected.

In some cases the subtle alliance between banks and the state has bolstered this stability. In China the crippling of Ant Group by the government let banks remain prominent in lending. In America Facebook came too close to finance when it tried to launch its online currency, Libra, and was forced back. Apple Pay and Google Pay are growing, but for now play only a niche role in payments. And crypto has split into two parts: a regulated piece that may become indistinguishable from traditional finance, and a less regulated one that operates mostly in flailing economies like Argentina.

The second big change is that emerging markets have developed open payments systems. They provide an alternative to both the bank/card model in the rich world and the closed fintech giants of China. Indeed, it is possible that through instant bank account-to-account transfer systems in Europe, and the roll-out of the Federal Reserve's FedNow instant-payments service in America, the rich world may come to copy the best systems from the emerging world.

A third change is that many governments are taking steps to reduce their dependence on Western payment networks and on the dollar. Such efforts, which have a long history, have been accelerated by sanctions imposed on Russia after its invasion of Ukraine. Several countries have built national alternatives to card networks like Visa and Mastercard. China is deploying an alternative to the SWIFT international messaging system for banks.

Some countries are also building multilateral payment linkages that allow citizens to use their domestic favourites abroad. UPI wallets from India can now be used in Singapore. Alipay wallets from China are accepted everywhere from Dubai to Washington, DC. GrabPay of Malaysia is usable across much of South-East Asia. China is leading the creation of an Asian payments system, with the yuan as the primary currency. As technology cheapens possible alternatives to the dollar, they may come to challenge the West's grip on international finance.

For control over payments systems confers massive political power. They are used to collect taxes and distribute benefits. They leave digital trails that ensure economic activity is more visible to the state, making tax evasion and organised crime harder to sustain. It is no surprise that many governments should be cracking down on crypto, which promised permissionless access to payments. America has just levelled charges against Binance, the world's largest crypto exchange, for evading American regulations. China is trying to ban crypto. India has restricted its use.

Modern digital-payment platforms are clearly challenging the old order

This report will describe the differing payment models, contrasting the bank/card networks in the rich world with the fast payments systems in emerging markets and the closed fintech ones in China. It will assess the possible role of cryptocurrencies and central-bank digital money. And it will look at how some governments may seek to use digital finance to reduce their dependence on the West. A good place to start is where the most exciting action is: the emerging world. ■

Emerging markets

A payments revolution

How emerging economies from India to Brazil built alternative payments models

TAKE A WALK on Mumbai's Juhu beach and little has changed in five years—except for the QR codes adorning every food stall. Go to São Paulo in Brazil, Beijing in China, or many other cities across the emerging world and you find something similar. "Most people only want to use UPI," says Govind, a seaside-snack vendor at Juhu, referring to India's fast-growing payments network.

The Unified Payments Interface (UPI) is a platform that allows free and fast account-to-account transfers using fintech apps such as PhonePe or Google Pay. Unlike Alipay in China, it is open, so users are not locked into a single company and can take their financial history to competitors, notes Praveena Rai, the chief operating officer of the National Payments Corporation of India (NPCI), which manages the platform. And it is facilitated by QR codes or easy-to-remember virtual IDs.

UPI is drawing attention from across the world. "Look at what India has accomplished with the UPI, Aadhaar and the payments stack," Sundar Pichai, Google's CEO, has marvelled. Overall, it processed over $1trn in transactions in 2022, equivalent to a third of India's GDP. It was bolstered by the government's surprise "demonetisation" of 2016, when multiple high-denomination banknotes were discontinued. UPI also benefited when covid left consumers scared of cash. It has grown from around 17% of 31bn digital transactions in 2019 to 52% of 88.4bn transactions by 2022. "India leads the world in real-time digital payments by clocking almost 40% of all such transactions," Narendra Modi, the prime minister, has boasted.

The Indian model is inspiring others. Brazil's Pix, which facilitates bank-to-bank payments with a small fee, was launched in November 2020. It now accounts for some 30% of Brazil's electronic payments (credit and debit cards take up around 20% each). Such open instant-payment systems are an alternative both to the bank/card model in the rich world and to the closed fintech one in China. "What we have shown is that it doesn't cost that much to move money if your network is well designed," says Nandan Nilekani, co-founder of the Indian tech giant Infosys, and an architect of India's "digital stack", including UPI.

An even bigger prize than efficiency is the chance to supercharge development. Raghuram Rajan, a former Reserve Bank of India (RBI) governor, notes that digital payments generate real-time data on sellers' businesses and buyers' purchasing habits. That allows lenders or insurers to reach customers who may have neither the financial history nor enough assets to participate in traditional finance. As Patrick Collison of Stripe, a payments firm, puts it, "The provision of credit is more socially valuable the less legible the creditworthiness of the borrower."

Digital development

Digital forms of money have long been a source of progress in emerging markets. In 2007 M-PESA, a mobile-money service, was launched in Kenya by the telecoms giant Safaricom. Users give cash to designated agents to top up an account linked to their phone's SIM card. Payments are sent by SMS to friends, family or retailers. M-PESA is now used by over 90% of Kenyan households. It makes it much easier than before to send money to relatives over distances. Consumer spending tends to go up when money can be moved with less friction. Academic estimates suggest that M-PESA has reduced extreme poverty in Kenya by at least 2%.



In China Ant Group, which was spun out of Alibaba, an e-commerce giant, and its fellow payments firm, WeChat Pay, have largely digitised the payments business. Once the fintech behemoths have lured consumers, they can offer loans and other financial services, helped by algorithms that gobble up data. More than 90% of digital payments in China now occur on these two apps. Before the recent government crackdown, Ant was involved in over 20% of Chinese short-term consumer credit. But Chinese fintech firms have had several high-profile clashes with the government: Ant's planned flotation was blocked and the lending of fintech firms was forced to shrink. Yet Christopher Beddor of Gavekal Dragonomics, a China-based research firm, says the worst of the attack on tech is over. In December 2022 Ant won approval to raise $1.5bn in capital.

The Alipay model is being widely copied elsewhere. PayTM, an Indian fintech giant that listed publicly at a value of nearly $20bn in 2021, has tried to replicate Alipay by creating a similar closed fintech ecosys- ▸▸

tem in India. It counts Ant as one of its biggest investors. Grab and Gojek, two South-East Asian superapps, have pursued similar attempts at digitisation.

The benefits of digital finance tend to be bigger in emerging economies than in the rich world, says Saurabh Mukherjea of Marcellus, an asset manager. That is because people in rich countries already have access to most modern financial services through well-kept record systems, as well as assets that can be collateralised. The hope is that UPI and similar systems might now let some poorer countries leapfrog the West. The Indian government has given nearly all households a bank account in a scheme called "Jan Dhan Yojana" that is making UPI far more accessible. New payments systems may even foster a credit boom. EY, a consultancy, says that fintech lending in India reached $270bn in 2022, up from just $9bn a decade earlier. This could be supercharged by the Account Aggregator scheme, which, like open banking in Europe, allows users to carry their financial history to a competitor.

No instant-payment system is perfect, but UPI is a clear improvement on cash

Open payments systems may not produce another giant with the clout of Ant in China. Alipay charges 0.1% for withdrawals above a certain threshold. Retailers pay an average of 0.55% in transaction fees. Its lending division once made comparable revenues. That open payments reduce the likelihood of a similar Indian giant emerging is partly by design. "Without UPI we'd get something like Ant without the tools to deal with it," says one Indian grandee, referring to the inability of the government to curb monopoly abuse.

State support has been critical to the open platforms' success. Chinese fintechs thrived partly because of scant regulation. India's central bank has heavily promoted UPI, even requiring retailers above a particular size to accept it. It also mandates zero fees and subsidises participants. Brazilian banks are similarly mandated to offer Pix. Though it is not free, its fees average only around 0.2% for traders, compared with over 2% for credit cards.

Competitive advantage

Boosters of India's system like noting that UPI promotes competition among fintechs and banks. Consumers want to use the most accepted payment systems; retailers similarly need access to the widely used. That is why card networks or closed systems often end up favouring a few players. Visa and Mastercard dominate the rich world, as Alipay and WeChat Pay dominate China, giving them huge market power. The architects of UPI and Pix see their models as breaking such a trend to concentration. "We see UPI as a public utility," says Ms Rai of NPCI.

Yet the state-led, zero-fee model has downsides. Indian bankers claim that a shortage of revenue has dissuaded banks and fintech firms from investing in consumer protection. "There are tech costs, maintenance costs, fraud and dispute costs," complains one. "Why would a financial firm incur all those expenditures when there's no revenue stream?" asks Ajay Shah of the XKDR Forum, a think-tank in Mumbai. "This is a wake up call...maybe the answer is to charge a little more," says Mr Rajan, the former RBI governor.

Ms Rai counters that UPI's zero cost boosts economic growth. The government compensated banks and some fintechs with just over 2,000 crore rupees ($250m) in 2022 as a subsidy for their public service in sustaining UPI. But that is a paltry 0.025% of the total value of transactions, and also far less than what it costs to run the UPI system, reckons one banker. Despite calls either to allow fees or to raise the public subsidy, India's 2023 budget will cut it by about 25%.

Customer protection has suffered. A survey by Renuka Sane, an Indian economist, and her co-authors, found that 18% of UPI users had some grievance with the system, such as fraud or a mistaken payment. Less than 30% have seen their complaints resolved. Uttam Nayak, a former boss of Visa in India, notes that, although UPI has rapidly growing volumes, the overall transaction value has not taken off as much. Consumers prefer safer payment methods for big-ticket items. "I use UPI to buy chai. But I wouldn't use it for a plane ticket," says one architect based in Mumbai.

There are other flaws with UPI. Transaction success rates, a key metric that can encourage more spending, are lower than for payment systems in developed markets. Financial-data sharing, which promotes competition among banks and unlocks access to credit, has been slow to take off. Sahamati, an association of account aggregators, finds that the number of linked accounts has grown to 5m in April 2023. But that is small when set against India's vast population.

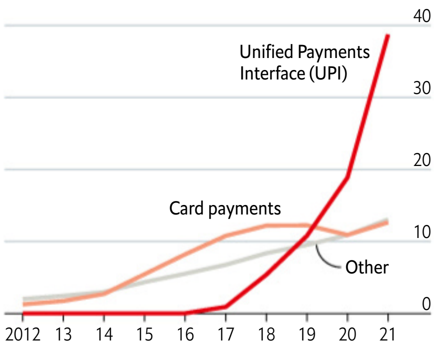
Developing UPI will require more investment. Ms Rai notes that it offers a useful customer-acquisition channel for banks and fintechs that could benefit from its massive amounts of data. "We see digital payments as a way to onboard customers," says Harshjit Sethi, managing director at Sequoia India, a VC firm. "Then you layer other financial services around them...like the holy grail of lending." Sameer Shetty of Axis Bank, one of India's largest, says that "Account aggregator is where UPI was in 2017."

But such change can happen only if the fintechs are let in. BhratPe, one leading Indian fintech, has a lending licence. Others such as PayTM, Google Pay and PhonePe do not. Politics could get in the way. A paper from the RBI in August 2022 looked at fees for larger value payments. Insiders familiar with the NPCI, the RBI and the finance ministry say the first two are open to transaction fees, but the government has all but shut the door on the idea.

Will state-directed entities be able successfully to maintain such a technologically advanced payment system? "What you want is for the market to churn rather than picking winners," says Mr Shah of the XKDR Forum. "UPI was central planning." Even those who champion UPI see a need for multiple payment options. One grandee talks of "concentration risk". They note that "If NPCI goes down, then the whole payment system goes down," adding that there "could be a role for a second NPCI."

An emerging revolution

India, electronic payments, annual transactions, bn



Source: Bank for International Settlements

No instant-payment system is perfect, but UPI is a clear improvement on cash. In March the RBI launched UPI for feature-phones equipped with buttons, not touch-screens, which could expand access to the system. And it is spreading abroad. Already UPI is integrated with Singapore's payments system, letting people send remittances with a relatively low 3% fee. India wants UPI to become a payment option abroad, just as Alipay is widely accepted outside China. Ms Rai says other countries may even adopt the entire UPI stack. Mr Nilekani hopes UPI will eventually be used everywhere. "If I go to Lulu in Dubai or Harrods in London, I should be able to make a payment with UPI." That would surely create new competition for the bank/card behemoths in the West. ■



Techfin v fintech

Battle stations

Banks and card networks have proved remarkably resilient in the face of digital competition

LAST OCTOBER Italy's new right-wing prime minister, Giorgia Meloni, chose card fees as one of her early targets. Her quarrel was with charges levied on card payments that go to processors, networks and banks. Angered by the policy of her predecessor, Mario Draghi, to fine firms that rejected digital payments, she called card fees a "hidden tax" on small businesses. Ms Meloni also suggested raising the limit on how much cash was allowed for large transactions, though she later backed away from this.

Everyone complains about card fees. Smaller firms sometimes even refuse cards or impose surcharges. Yet businesses in Europe have it better than most, for fees are usually capped at 0.3% for credit cards and 0.2% for debit cards. In America credit-card fees are uncapped. Moreover cash imposes costs of its own, including slow processing and the chance of greater tax evasion.

The rich world's payments systems were designed long before the internet. "The system in the West hasn't really fundamentally changed in 50, 60 years," observes Luca Bocchio of Accel, a VC firm. Alex Rampell of a16z, another VC firm, points out that the numbers needed to use a card are plastered directly onto it, as cards came before the era of two-factor authentication.

One reason for optimism over new digital finance and the fintech boom is that banks and cards look ripe for disruption. By our calculations, in 2019 crypto firms and fintechs accounted for around 9% of the global market capitalisation of large listed and private payment firms, including banks and card networks. By the third quarter of 2021 that share had almost doubled to 15%. Yet it has since fallen back to nearer 10%. Banks and card networks have proved resilient, especially in America. Part of the reason is that rising interest rates have crushed some budding fintechs, whose valuations are based on expectations of future growth. Banks, by contrast, capture an "interest-rate spread", the difference between lending and deposit rates, which has widened.

There are also structural reasons for the staying power of the bank/card model. Incumbent banks have adopted new technologies faster than upstarts could acquire customers. Cards have also become adept at retaining customers through juicy reward points, tied to everything from beach holidays to airline miles. These are funded through transaction fees which may seem hefty, but are not so big as to persuade retailers to refuse to accept cards.

The economics of credit cards helps explain the strength of the bank/card model. When you swipe your card, a complex flow of information takes place. In America retailers cough up around 1-3% of the total transaction value to the card-issuing bank (interchange), the credit-card company (scheme fee) and their payment processor (processing fee). The interchange component is the largest, because the bank is taking the risk that the bill will not be paid. Cards with the most reward points charge the biggest fees. According to data collected by Lulu Wang of Stanford's Graduate School of Business, for a $100 transaction, about $0.14 goes to the card network, $0.43 goes to the acquirer and $1.68 goes to the issuing bank. Consumers get about $1.30 back through rewards, denting the issuer's profits (see diagram on next page).

One criticism of this system is that it particularly hits the margins of small retailers that do not have the power to negotiate lower fees. "Your Amazon account has been fixed for years," says Ahmed Siddiqui, author of "The Anatomy of the Swipe", a book on payments. A study by the Reserve Bank of Australia found that average card fees in Australia were 1.15% for the smallest tenth of retailers but only 0.47% for the largest tenth. And there are offsetting benefits. Credit-card usage increases spending by around 12-18%, by one estimate, because consumers usually do not have to pay up until the end of the month.

The bigger problem is that retailers pass on some of their card fees to consumers in higher prices. Many people do not have access to credit cards, so they end up paying for other people's rewards. One study from the Bank of Canada in 2021 found that, for every income bracket, higher prices outweighed the reward benefits, but that it was the poorest who suffered most. Those earning $25,000-50,000 paid a 1.4% net cost after taking into account rewards. Those earning over $150,000 faced only a 0.82% net cost.

Why are card fees so high, especially in America? One answer, says Mr Rampell, is that "If I'm a bank, I'd rather issue a card with the network that is going to charge higher fees because then I get paid more." That causes card networks to compete to offer more expensive products. "It's totally bizarre," he adds. Consumers are incentivised to choose the card with the most rewards. And retailers are willing to accept expensive cards because they otherwise sacrifice too many sales. This model tends to concentrate the business, with Visa and Mastercard as overwhelmingly the biggest two players. These giants have profit margins as big as 40-50%.

The search for improvement

Three broad ideas exist for improving the current model: differential pricing, regulation and competition from new networks. Start with differential pricing, often in the form of a "surcharge" on card usage or a "discount" for using cash. The idea is intuitive enough: why not make users of expensive cards pay for them? Surcharges are popular in Australia. When restrictions on surcharges were lifted in Canada in 2020, a survey of 4,000 businesses by the Canadian Federation of Independent Business found that nearly 20% ▸▸

were considering introducing them. They exist in parts of America. When this correspondent bought gumbo shrimp at a New Orleans restaurant in January, the bill listed two prices: one for cards, the other for cash. Minimum values for card use and surcharges are popular with small shops.

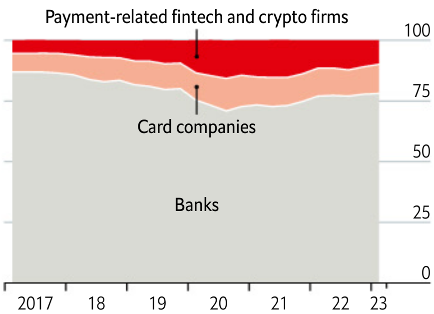
Yet differential pricing is unlikely to go far. Mr Wang finds that fewer than 5% of transactions in America have payment-specific pricing. Cards are often more convenient for retailers because the card networks handle consumer disputes. The smallest traders that stand to benefit the most are precisely those in which non-card consumers would benefit the least because of low payment values. Many retailers fear that card users will be turned off by surcharges and go elsewhere.

Many have tried regulation instead. In 2015 Europe capped interchange fees for credit cards at 0.3%, several times less than most American ones. Australia introduced caps for credit cards at 0.8% and for debit cards at 0.2%. It also encouraged surcharges across a wide swathe of merchants so that shops would not have to worry about losing business to competitors if they imposed them. America's Congress passed the Durbin amendment in 2011, capping debit-card fees at $0.21 plus 0.05% of transaction values for cards issued by large banks. Yet the amendment had unintended consequences. Because debit-card fees fell, rewards associated with them did so as well. Consumers migrated to credit cards, which do not have fee caps. America now props up the global profits of the card networks and issuers. Insiders reckon that half of Visa's and Mastercard's revenues come from America.

Bring on the Fed

American regulators are unlikely to go the European way. Instead they want more competition. Some hope the Federal Reserve's FedNow, which will facilitate instant account-to-account transfers when launched in July, will be a game-changer like India's UPI or Brazil's Pix. Similar hopes exist for other fast systems like Real-Time Payments, launched in 2017, and the existing card networks' new systems. Mr Siddiqui is optimistic about business-to-business payments. Systems like FedNow are a big improvement on today's wire transfers, which cost $25-35 as they must be manually checked. Automated clearing-house transfers are cheaper, but they are slow and do not tell senders whether the money has gone through. Businesses are more open to new payment methods and to case-by-case pricing than consumers, so they may switch.

Davids and Goliaths
Financial firms*, market capitalisation, % of total



*552 listed and private firms with valuations over $3bn in past decade
Sources: Bloomberg; Crunchbase; PitchBook; *The Economist*

Consumer payments are less assured. Although person-to-person bank transfers have taken off in Britain and Europe, they have struggled to make headway with retailers, where the real money is. Consumers love their cards and retailers like the added sales. Card networks also have robust systems for resolving disputes of the kind that UPI struggles to cope with. That is why Mr Wang's research concludes that competition alone is not enough to reduce card fees.

Hence a third strategy, to build an alternative payment method for existing repeat customers, rather like the RedCard of Target, a big retailer. RedCard offers customers 5% discounts on Target purchases, encouraging them to spend at Target over its competitors. Some 20% of the firm's $100bn annual revenues come through RedCard. The interesting aspect, says Mr Rampell of a16z, is that for its debit cards, Target takes the money direct from a customer's bank account, sidestepping normal card fees altogether.

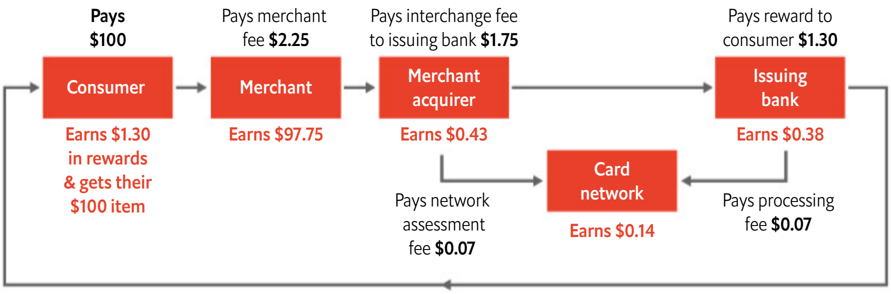
The potential gains are large. Target would save around $2bn a year if all its customers used RedCard rather than their normal credit cards. Other companies might follow suit. Already many firms that bill customers frequently, such as utilities, encourage consumers to link their bank accounts to cheaper direct debits. Ride-hailers such as Uber and Lyft that need to pay their nearly 7m drivers often use debit networks to do so quickly at a low cost. FedNow could encourage more firms to try a similar approach.

Big tech is getting in on the act. In March Apple, which already issues a credit card that has 7m users, announced that it was joining the buy-now-pay-later business. A month later it launched a savings account with Goldman Sachs that will offer an interest rate of over 4%. Already around three-quarters of iPhone users have ApplePay accounts, up from half in 2020. Earlier this month Meta's WhatsApp, which has 2.2bn monthly users, launched in Singapore, shortly after its foray into Brazil. The massive customer bases of the iPhone and of WhatsApp could one day turn both Apple and Meta into global payments giants.

Other fintechs are going after different bits of the payments stack. One is payment processing, which has attracted the likes of Checkout.com, Adyen and Stripe, which just took on Amazon as a customer. Céline Dufétel, chief operating officer of Checkout, notes that the complexity of accepting payments has grown with the rise of international payments and of new payment systems. Processors must now deal with different currencies, regulations and sources of funds, all of which give them continued pricing power.

The biggest opportunities may be in Asia. Melissa Guzy, managing partner of Arbor Ventures in Hong Kong, notes that buy-now-pay-later has done better in Asia than in the West, mainly because fewer Asians have credit cards. "In some places like Japan, users are also wary of putting their card information online," she adds. That may make existing payments methods especially ripe for disruption by new digital systems. As Mr Collison of Stripe says, "When you suppress [credit] in one place, it sort of reappears in another." ■

A fee for all seasons
United States, simplified supply chain of a $100 credit-card payment*



*Fees are estimates for a Visa signature credit-card payment. Not including other costs firms face. Diagram omits some actors in payment flow
Sources: "Payment network competition", by L. Wang, 2023; "The Anatomy of the Swipe", by A. Siddiqui, 2020

Cryptocurrencies

Crypto-confusion



Cryptocurrencies may yet find a role, but they are not going to revolutionise payments

"Two years ago everyone wanted to be us. Now everyone hates us," laments a 24-year-old crypto founder at a gathering in New York. After once seeming as if it might threaten to remake the entire financial system, crypto has gone through a spectacular decline. The market value of all cryptocurrencies ballooned from $250bn at the start of 2020 to $3trn by late 2021. But it has since fallen back to just $1.3trn. Even more important, public trust in crypto has hit rock bottom after a string of high-profile swindles and crashes, notably the downfall of FTX, a popular cryptocurrency exchange, in November 2022.

Yet in Dubai, crypto talk remains boisterous. The emirate has opened its doors to the industry by creating a regulatory body dedicated to crypto that has created "much needed clarity", argues Alex Chehade, the local boss of Binance, the world's largest crypto exchange. Binance and other exchanges such as Crypto.com and Bybit set up shop in Dubai in 2022. Big questions still hang over the industry. At one meeting in Dubai this correspondent met an indignant response when he asked if crypto would ever find its "killer app". "We already have it," snapped a developer.

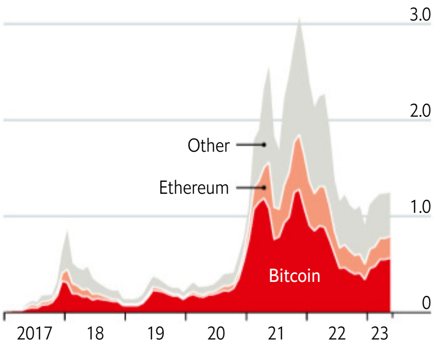
Attitudes to crypto have polarised. To some, its promise of revolutionising finance has been shattered. It was meant to sidestep a stodgy rent-seeking financial system that was expensive, inaccessible to many and possibly untrustworthy. Yet the financial system is not static: it is actively adopting new technology. And regulators are belatedly acting. Singapore, once a leading crypto hub, asked Binance to pause operations as of December 2022. It had issued just ten licences out of some 600 recent applications to set up crypto businesses. As many as 25 out of 45 countries looked at by the Atlantic Council, a think-tank, have imposed partial or complete bans on crypto.

Pockets of hope remain. The price of bitcoin is up almost 70% this year, including a surge after the collapse of Silicon Valley Bank. There is some evidence to suggest that cryptocurrencies win more adherents in weak countries that are afflicted by high inflation or currency depreciation, such as Argentina and Nigeria. That points to a deeper truth, which is that the strongest arguments for using crypto have always been where the alternatives are worse.

In 2008 Satoshi Nakamoto said in his bitcoin pitch that "What is needed is an electronic payment system...allowing any two willing parties to transact directly with each other without the need for a trusted third party." Crypto transactions promised more efficiency and the avoidance of irksome control by governments. Yet neither benefit has really come about. Transactions still have to be verified by computers that maintain a copy of the associated blockchain, one reason why Coinbase, a listed American crypto-exchange, charges a 1% fee for payments. Add the expense of moving money in and out of crypto and overall costs are quite high. Why pay fees to transact on the Ethereum blockchain when India's UPI or Brazil's Pix is cheaper?

Boom and bust

Cryptocurrencies, total market value, $trn



Source: CoinGecko

It is not easy to avoid government oversight, either. To move from traditional currency into crypto, consumers must use on-ramps, which tend to be centralised platforms like Coinbase or Binance. The same holds for stablecoins that are pegged to the dollar. They must be trusted—exactly what crypto claimed not to need. Decentralised platforms like Uniswap exist, but they are hard to use and bring other risks, such as losing the private key, a password that can never be recovered. Mining bitcoin also brings huge environmental costs.

A sudden love of regulation

Crypto advocates now claim to want regulation to reduce uncertainty and regain consumer trust. But regulators often go a lot further than many had expected. The Reserve Bank of India's governor, Shaktikanta Das, has said crypto has "no inherent value" and he may ban most of it. On January 5th American regulators (including the Fed and the Federal Deposit Insurance Corporation) declared that crypto-assets on decentralised networks were "highly likely to be inconsistent with safe and sound banking practices." The government also seized Signature Bank, which was a prominent bank for the crypto industry, after it collapsed.

As regulation comes for crypto, it will make transactions more expensive. Mr Poon of Hong Kong Polytechnic University says much of the cost of financial transactions comes from complying with regulations like know-your-customer and anti-money-laundering laws. Yet friendlier regulation could help the industry. Binance and other crypto firms are in Dubai precisely because of the regulatory cover it provides. The question then is: if crypto faces the same regulation as fintech firms, does it offer anything uniquely valuable?

There are places where crypto may still ▸▸

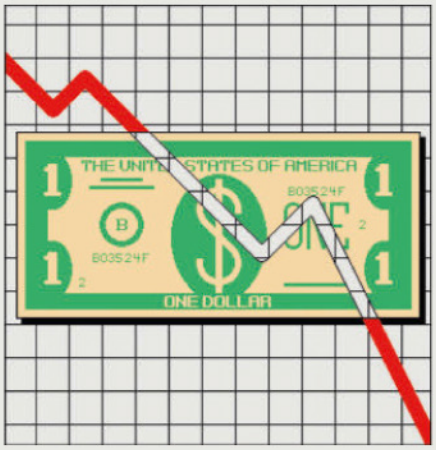
Dollar diplomacy

Can digital finance reduce the world's dependence on the dollar?

After Russia's invasion of Ukraine in 2014, a financial battle began. Western card networks pulled out of Russia and politicians called for it to be cut off from the SWIFT messaging system for international payments. In response Russia built a central-bank owned card network called Mir. So when its bigger invasion in 2022 led to more sanctions, domestic commerce in Russia hardly felt it. Other countries wishing to escape Western dominance have taken note. China has shut out Western card networks. Indian nationalists talk up UPI and its RuPay card as ways to reduce dependence on the West.

Some hope that digital-payment platforms will help reduce dependence on SWIFT and the dollar, still the world's dominant currency. India has linked UPI with Singapore's fast payments system and is in talks with 30 other countries to help them adopt the UPI model, creating international financial links. It could eventually become a "network of low value cross-border retail payments", says one executive at a leading Indian fintech.

But it is Chinese efforts that attract most attention in the West. Its cross-border interbank payment system (CIPS), launched in 2015, uses real-time settlement to move money. It had expanded to 1,430 participants by early this year, more than half of them based outside China. Transaction volumes grew by 75% in 2021 and CIPS processed over $50bn a day in 2022. Although that is 40 times smaller than CHIPS, an American clearing house, it offers an alternative to the Western system in the event of sanctions. France has reportedly used yuan to sell liquefied natural gas. Brazil uses the currency for some trade, as does Russia. The yuan's share of trade finance has more than doubled from 2% to 4.5% since February 2022.



Douglas Arner of the University of Hong Kong thinks that central-bank digital currencies could pose a bigger threat by creating a common standard for cross-border payments. One trial by the Bank for International Settlements (BIS), a club of central banks, called mBridge, linked the central banks of China, Hong Kong, Thailand and the UAE using a distributed ledger to settle cross-border payments. Overseas trade can be cumbersome because few banks have accounts in other countries. A sender bank must transfer funds to a correspondent bank that has an overseas account, driving up costs.

In theory systems like mBridge could reduce costs. In a trial in 2022, 20 banks across the four places transacted some $22m in 164 payments. The BIS has yet to disclose how efficient this was: indeed, it had to turn to traditional markets outside its platform because it did not have enough liquidity. But Mr Sun of HSBC, which joined the trial, says that the system worked technically. The questions left concern alignment of standards and finding enough liquidity.

Others are sceptical. Many argue that, however good the technology, the yuan cannot grow further unless China opens up its capital account. One Chinese analyst says flatly that "The PBOC is aware of the limits of the e-CNY as a tool for RMB internationalisation." Instant-settlement technology can also make mistakes in transfers more likely.

Yet new cross-border payment systems will surely cut the cost of trading outside the dollar and SWIFT, says Daleep Singh, a former White House architect of sanctions. Mr Singh wonders why America has given up its "seat at the table" on CBDCs. As Gita Gopinath and Jeremy Stein, two economists, explain in a 2021 paper, a currency's dominance historically begins with trade invoicing. As popularity grows and capital markets deepen, it becomes more attractive as a reserve currency.

Neither the yuan nor any other currency is anywhere near being a serious challenger to the dollar. But if digital finance makes it less costly to avoid the greenback, that could cause some concern in America.

be useful. Kim Grauer, head of research at Chainanalysis, which researches data from blockchains, finds hotspots of crypto adoption "in places that suffer from currency depreciation…or severe inflation." Crypto can act as a hedge. "Bitcoin in Lebanese currency is up something like 6,000%," notes Mr Chehade of Binance. Governments can also raise demand. Ms Grauer says Nigerian capital controls and Argentinian restrictions on holding dollars offer reasons for people to move funds into stablecoins and bitcoin. Their governments might detect a risk to financial stability. Their citizens see an alternative to incompetent or corrupt officials.

Another commonly cited case is cross-border payments, particularly for illiquid currency pairs. "Globalisation today has been capped at $10,000," says Navin Gupta, a banker who is now at Ripple, a crypto firm that does international payments. Cross-border fees take a greater share of value for smaller payments because of high fixed fees, which deter some transactions entirely. Ripple's network allows cryptocurrencies to intermediate trades between traditional currencies, reducing costs. The firm, worth $15bn at the start of 2022, has processed some $30bn through its cross-border service in five years.

By comparison Wise (formerly TransferWise), a cross-border fintech, processed $33bn in the first quarter of 2023 alone. It reduces costs by doing parallel domestic transfers in place of two cross-border ones. A study by the World Bank finds that cross-border remittance costs have fallen from 7% a decade ago to 5%. And if consumers are savvy enough to use the best option (often a new-age fintech)? Transfer costs may then fall to just 3%.

In 2015 Vitalik Buterin, co-founder of Ethereum and crypto's philosopher king, wrote a blog post conceding that crypto had not yet found a "killer app". Mr Buterin's post went beyond the payments and finance parts of crypto. Yet his point still rings true. Crypto will not remake the global financial system because it has proved neither efficient nor immune to regulation. Instead, a stronger candidate for digital change may be central banks. ■

Digital money

Enter the central banks

The roll-out of central-bank digital currencies is proving slower than expected

IN 1992 THE Bank of Finland, the country's central bank, launched a curious card called Avant. It looked like a debit card, except that it was meant to replicate the properties of cash. The money stored on an Avant card was backed by the Bank of Finland rather than a commercial bank, which made it, the bank claims, the world's first central-bank digital currency (CBDC). Cardholders did not have accounts with the bank. Instead their monetary value was tracked by chips physically inserted into them. As with cash, that meant that users were anonymous. Avant ran for three years before being privatised and later discontinued. It saw little uptake compared with other payment channels, such as credit cards with reward points. And it failed to make money.

It took another 30 years for the idea of central-bank digital money to be seriously revived. As recently as 2016, almost no central banks were seriously looking at CBDCs. Now most are. Declining cash usage, the rise of cryptocurrencies and Facebook's possible launch of a digital currency called Libra all pushed central banks to look for ways to avoid losing control of their financial systems. Fully 114 countries, representing over 95% of world GDP, have now launched or are exploring CBDCs, up from only 35 in mid-2020, reckons the Atlantic Council. At least ten have fully launched, with China being the largest to run a pilot.

Despite the hype, a small but growing group of politicians and central bankers are questioning the purpose of CBDCs. In January 2022 a report by Britain's House of Lords concluded that "We have yet to hear a convincing case for why the UK needs a retail CBDC." In March Sweden's Riksbank released a 900-page report concluding that the case for an e-krona (in a place with a high degree of cashlessness) was not strong. It has been joined by others that see little advantage in pursuing a CBDC, given the advanced nature of their banking and payment systems.

Yet it would be wrong to write off CBDCs. Central banks are the ultimate settlement institution of any financial system. A "wholesale" CBDC, accessible only to certain financial institutions, could make payments systems more competitive by giving fintechs access to central banks directly rather than through banks. CBDCs might help upgrade cross-border payments, making possible instant settlement across pairs of currencies. Even for countries that have advanced payment systems, there is a case for a CBDC to influence standards governing the design of newfangled currencies. It is not inconceivable that CBDCs could one day go mainstream. Despite recent scepticism, the hardly hypeish deputy governor of the Bank of England, Sir Jon Cunliffe, has said it is likely that a "digital pound will be needed in the UK."

The impact of CBDCs will depend greatly on their design. All are liabilities of a central bank, meaning they do not come with the risk of deposit runs on commercial banks. Some use private blockchains, others do not. Yet the fully launched CBDCs and pilots, from the Bahamas to China to Nigeria, have converged on a few common principles. They are typically intermediated by commercial banks and work with private wallet-providers, limiting the complexity of managing them. The Bahamian sand dollar and Nigeria's e-naira, the earliest to launch, have caps on how much users can hold. China's e-CNY, the largest-scale CBDC pilot, is similar. None bear interest and all have zero transaction fees, at least for now. The reason for usage caps and zero interest is to avert large outflows of deposits from commercial banks into CBDCs.

How are the experiments faring? The sand dollar, e-CNY and e-naira have seen little uptake despite high-profile launches. In March the *South China Morning Post* reported that most shops in China rarely take payments in e-CNY. Some 26 cities are participating in the pilot. Data from the PBOC, China's central bank, found that only some 13.6bn yuan ($2bn) was in circulation in January. A total of 261m wallets were created by the start of 2022, yet only 100bn yuan ($14bn) was transacted between October 2020 and August 2022. The reason, say some Chinese users, is that Alipay and WeChat Pay already work well, so many retailers cannot be bothered with e-CNY.

Other central bankers are watching with interest. Some have dropped the idea altogether. The central bank of Denmark (which already has a highly digitised payments system) has said "It is not clear how a retail CBDC...can contribute to better and more secure access to payments." The Bank of Japan started piloting a CBDC in



2021 but “has no plans to issue” it. Finland, perhaps remembering Avant, also has no plans (though it supports a digital euro to improve cross-border payments across Europe). The problem, says an economist at one central bank, is that most of the potential value of a CBDC can be realised within the existing system.

What might drive more adoption? Some governments are encouraging CBDCs through incentives. Nigeria is offering 5% discounts to those who use the e-naira to pay for rickshaws. Like others, it is motivated by the need for greater financial inclusion, as much of its population is unbanked. China has handed out “red envelopes” with free e-CNY. It has also long struggled to coax fintech firms such as Ant and Tencent to hand over access to real-time transaction data. That gives it an incentive to put the e-CNY in the centre of commerce.

Others focus on what might make CBDCs special. Lewis Sun, who heads emerging payments for HSBC, a bank, thinks that although using CBDCs for payments alone may not be that different from existing wholesale payment systems, “Programmable money is unique.” Rich Turrin, a Shanghai-based author of the book “Cashless” about China’s CBDC, describes an experiment in the province of Chengdu, where reports suggest six farmers were given e-CNY with smart contracts stipulating that it could be used only for farming purposes. Some think this could be a step towards a dream of fine-grained more efficient control over the entire economy. CBDCs could also help countries perform the messaging and movement of funds required for cross-border transactions, possibly bypassing the dollar system, suggests Mr Turrin.

Yet these possible futures all remain experiments for now. “It is still early days,” admits Mr Turrin. In that, at least, it is not unlike the crypto industry. ■

The future

A balancing act

Digital finance has enormous promise but also some risks

All payment systems come with trade-offs. In a sense, all that is needed is a spreadsheet recording how much of a given currency any would-be payer has. But to prevent fraud, manage disputes, ensure privacy and offer credit, the costs can add up. One estimate suggests they can amount to over 2% of global GDP.

This special report has laid out three broad payment models. In the rich world card networks on top of bank accounts have retained their dominance. Yet even here there are different approaches. America’s uncapped credit-card fees make the system regressive if also more credit-friendly. European regulation of fees and willingness to give fintechs access to payment systems has instead meant more competition and greater consumer choice.

In India and Brazil zero or low-fee bank account-to-account transfers have digitised payments systems. This approach could be ideal for low-value payments in poor countries. In time the data they produce could usefully boost credit provision at an early stage of development. Yet as with any state-led system, there is a risk of mismanagement, exemplified by India’s insistence on keeping fees for its UPI payment system at zero.

In China the closed duopoly of Alipay and WeChat Pay has persisted despite a state crackdown. Its role in credit provision has lessened as China shores up its banks. But the worst of the crackdown is over. In time China’s e-CNY may grow into a huge payments system, but only if the government pushes it. Either way, the government has access to data on every digital payment, having forced Ant Group and Tencent to co-operate. That will reinforce its control.

Ultimately the new world of digital finance should unleash great potential

No payments system is perfect, and each could learn from others. America should consider the European model of capping credit-card fees or letting debit cards compete on an even footing. Either would make the system more inclusive. India ought to be ready to introduce small fees for digital payments, as Brazil has done. That would improve customer protection and help the system grow. Neither cryptocurrencies nor central-bank digital currencies will revolutionise payments systems.

Going cashless also comes with risks. During the pandemic, despite a surge in digital payments, the amount of physical cash in circulation rose, by about 10% in Britain. Part of the reason was a flight to safety. What if banks or critical infrastructure were to go down? Many countries, from Argentina to Belarus to China, range from overbearing to incompetent. In these, it is good that citizens can save and transact beyond the state’s eye.

A more novel risk from digital finance may be financial instability. A recent paper by Luigi Zingales of the University of Chicago and co-authors finds that deposit outflows from digital banks were greater than those from traditional banks in the second quarter of 2022. The number of brokerage accounts, which give consumers another place to park assets, also correlates with greater outflows. As the authors conclude: “Regulation that takes as given deposit stickiness may be obsolete.”

The Silicon Valley Bank collapse is instructive in this regard. It had digitally savvy depositors, comfortable with banking apps. As Jane Fraser, boss of Citigroup, a bank, has said, social media and mobile banking could yet be a “game-changer” for bank runs. SVB was closed for the weekend of March 11th-12th, giving the authorities time to work out what to do. But a real-time payments system, like UPI, Pix, or America’s FedNow, would make this a lot harder. The risk of deposit flight from banks is one reason why CBDCs have caps on how much a user can hold.

There are answers to such possible threats from digital finance. One is more regulation. Force banks to hold less risky assets and the likelihood of a bank run falls. Another is for regulators to give more firms, including fintechs, access to riskless central-bank reserves for facilitating payments. That could reduce the pressure governments face to backstop banks because customers would have other options for accessing liquidity. Britain already has a version of this, since non-bank payment-service providers can apply to use the Bank of England’s real-time payments system.

As with many technologies, digital finance may empower oppressive states and bring stability risks of its own, stressing the need for better governance. But ultimately the new world of digital payments should unleash great potential. It will reduce friction for domestic and cross-border payments. It has brought millions into the formal financial system, giving them access to credit and other financial services. Given the centrality of payments to economic activity, it promises to add value to many economies. ■

ACKNOWLEDGMENTS A list of acknowledgments and sources is included in the online version of this special report

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Turkey

Round one, Erdogan

ANKARA

Recep Tayyip Erdogan fails to win Turkey's presidential election outright, but heads confidently into the run-off

The air seemed to go out of the 16-storey building in eastern Ankara, the headquarters of the Republican People's Party (CHP), Turkey's main opposition party, late on May 14th. Opinion polls had given Kemal Kilicdaroglu, the party's leader and the opposition's joint candidate for the presidential elections, a decent lead over Turkey's longtime leader, Recep Tayyip Erdogan, in the first round of the contest. Some even saw him winning an outright majority of the vote, enough to claim immediate victory. Nothing of the sort happened. By the time dawn broke over the city, Mr Kilicdaroglu had secured only 44.9%, compared to 49.5% for Mr Erdogan. That was enough to force the Turkish strongman into a run-off on May 28th, but not enough to prevent a sense of despair from spreading through the halls of the CHP building. Mr Erdogan now has a clear path to re-election. Mr Kilicdaroglu's chances of pulling off a historic upset are thin.

The elections to parliament, held in tandem with the ones for the top office, compounded the damage. The Nation Alliance, a coalition of six opposition parties headed by the CHP and the centre-right Good Party (Iyi), won 35% of the vote, also well below expectations, which will give it 212 out of 600 seats. Mr Erdogan's bloc, which includes his Justice and Development (AK) party and the far-right Nationalist Movement Party (MHP), took 49.5%, enough to retain a comfortable majority with 323 seats. A smaller opposition alliance headed by Turkey's main Kurdish party, the Peoples' Democratic Party (HDP), won 10.6% (65 seats).

The crowds outside the CHP building thinned out after midnight. A small group of young people remained, chanting opposition slogans and singing. Some embraced. The mood was markedly more upbeat a couple of kilometres away, where thousands of government supporters, escorted by cars blaring music and honking their horns, had turned out to see Mr Erdogan speak. Turkey's leader walked out onto the balcony of his own party's headquarters, where he has delivered scores of victory speeches, and gloated. "Somebody's in the kitchen," he said, referring to Mr Kilicdaroglu, known for recording social-media videos from his modestly furnished kitchen. "And we're on the balcony."

Mr Kilicdaroglu is down, but not out. Still, to have any chance of winning the run-off, the opposition leader would have to woo some 3m voters to his cause in two weeks. His best hope may be an endorsement from Sinan Ogan, the nationalist ▸▸

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candidate who received 5.2% of the vote, a surprisingly strong showing. In recent interviews, Mr Ogan suggested he could back either Mr Erdogan or Mr Kilicdaroglu, in exchange for one or more cabinet posts for him and his party.

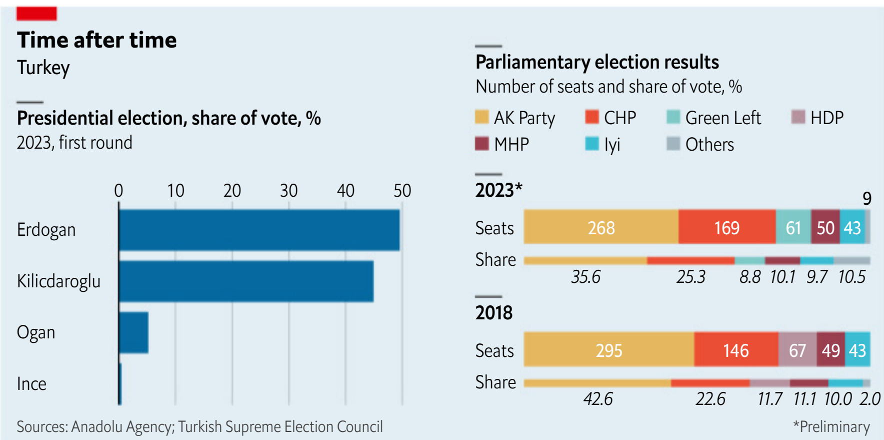
But so underwhelming was Mr Kilicdaroglu's performance in the first round that even such an endorsement would not be enough, since many of Mr Ogan's voters may gravitate to Mr Erdogan anyway. The opposition will have to refocus the entire debate on the economy, says Ahmet Han, an international-relations professor at Beykoz University. "That is their only chance," he says.

Mr Erdogan confounded almost all of the pollsters. He did so, says Mr Han, by deflecting attention from the state of the economy, warped by 44% inflation and the lowest real interest rates anywhere in the world, and focusing instead on identity politics, national pride and security. The opposition, he claimed in one speech after another, was beholden to the Kurdistan Workers' Party (PKK), an outlawed separatist group, and to the Gulen community, a religious sect Turkey blames for a violent coup attempt in 2016. Such rhetoric appears to have resonated with millions of voters, thanks also to Turkey's captive media, which went to new lengths to ensure Mr Erdogan could be heard in every living room in the country. Two days ahead of the vote, 24 channels broadcast a live interview with the Turkish leader. Mr Kilicdaroglu appeared on one channel.

Mr Erdogan also promised new handouts, including a 45% salary increase for hundreds of thousands of public-sector workers, and unveiled scores of new projects, including Turkey's biggest warship, its first electric car, and a Russian-built nuclear plant. Despite hiccups, the economy was safe in Mr Erdogan's hands, such projects were meant to suggest. He also appeared unscathed by the earthquakes that killed more than 50,000 people in the south of the country at the start of the year, and by his government's botched response to the tragedy. Mr Erdogan came out on top in eight of the 11 provinces, home to some 14m people, affected by the quake. His parliamentary alliance lost in just one.

But the economy may nonetheless come back to haunt Mr Erdogan even before May 28th. Foreign investors, who had been frozen or driven out of Turkish markets by Mr Erdogan's loony economic policies, creeping capital controls, and his control over the central bank, had seemed to be pricing in a possible opposition victory before May 14th. Now that the opposite scenario is more likely, a backlash seems to be brewing, compounded by fears that Mr Erdogan, who has refused to raise interest rates, has no viable plan to bring down inflation. In the three days since the election on May 14th, the Turkish lira has fallen by 1%. The annual cost of insuring Turkish government debt against default climbed by 1.7 percentage points during the same period. A fresh currency crisis is possible unless Mr Erdogan changes course. Turkey's leader will do his best to keep it at bay over the next couple of weeks. His victory in round two may depend on whether he can succeed.

The economy is by no means all that is at stake. Away from the noise and the celebrations, in a prison cell on Istanbul's eastern outskirts, Mucella Yapici, an architect, and two filmmakers, Cigdem Mater and Mine Ozerden, followed the election on a small television. The three women had been sentenced last year to 18 years behind bars for taking part in protests against Mr Erdogan's government a decade ago. For them, and for scores of other political prisoners, a victory for Mr Kilicdaroglu would have offered a chance of freedom. A victory for Mr Erdogan would crush any such hopes. "We looked at each other when the results came," Ms Yapici told her daughter Burcu, who visited a few days after the vote. "We feared this was coming but we weren't surprised." Her mother had always told her not to be too optimistic, Burcu said. But she had not given up hope. "You never know what will happen in Turkey." ■



Arms for Ukraine

A message from Europe

An impressive demonstration of collective commitment to Ukraine

UKRAINE'S PRESIDENT, Volodymyr Zelensky, hurtled round Europe last weekend, and came away with plenty to show for it. He started out in Rome, where the Italian prime minister, Giorgia Meloni, promised to continue to supply his country with weapons to fight Russia for as long as necessary. From there, a Luftwaffe Airbus, escorted by Typhoon fighter jets, flew Mr Zelensky to Berlin, where Germany's chancellor, Olaf Scholz, surprised critics of his previous reticence about the supply of war-winning weapons to Ukraine by announcing a new support package which is worth €2.7bn ($2.9bn)

The package includes four Iris-T air-defence systems, 18 wheeled howitzers with ammunition, 30 Leopard 1 tanks, 20 Marder infantry fighting vehicles and more than 200 surveillance drones. A deal was also announced whereby Germany's largest arms manufacturer, Rheinmetall, will form a joint venture with Ukraine's Ukroboronprom to service and repair tanks, and ultimately manufacture them.

Mr Zelensky then travelled with Mr Scholz to Aachen, where he was presented with the Charlemagne Prize, an award for bringing Europeans together. Ursula von der Leyen, president of the European Commission, gushed: "Ukraine incarnates everything the European idea is living for: the courage of convictions, the fight for values and freedom, the commitment to peace and unity."

Next stop was the Élysée, where President Emmanuel Macron promised in the coming weeks to train and equip several battalions with armoured vehicles, such as the six-wheeled AMX-10RC light tank, and to boost Ukraine's air defences. Finally, an RAF Chinook helicopter took Mr Zelensky to Chequers, the British prime minister's retreat, for hugs with Rishi Sunak and confirmation that as well as the supply of Storm Shadow air-launched cruise missiles that was announced last week, Britain would be sending hundreds of air-defence missiles, as well as armed drones with a range of more than 200km.

The biggest game-changer for Ukraine, at least as far as its coming offensive is concerned, is the Storm Shadow. The Anglo-French missile has a range of at least 250km. It also has stealth features that make it hard for air-defence systems to spot, and carries a bunker-busting dual-charge warhead. Amid reports that Ukrai- ▶▶

nian Su-24 aircraft have already fired the missile, Russian logistics hubs and command posts that sit beyond the 80km range of the American HIMARS rocket system are now in jeopardy, as are bridges and air bases in Crimea.

The messaging from Mr Zelensky's trip may be almost as important as the weapons themselves. At this week's G7 summit in Hiroshima, there will be further pressure on the Americans to provide Ukraine with longer-range missiles and allow an emerging coalition of countries to give Mr Zelensky the F-16 fighter jets he needs. All this will convey to Vladimir Putin that after this Ukrainian offensive there may be even better-equipped ones to come. ■

Rest and recreation

City of love and war

KRAMATORSK

How a front-line city became Ukraine's romantic capital

THE 13:38 EXPRESS from Kyiv pulls into Kramatorsk, welcomed by a sea of flowers and outstretched arms. Of the passengers who aren't soldiers on their way to nearby Bakhmut, almost all on board are the wives and girlfriends of those already fighting. Viktoria, 27, and Karolina, 29, have travelled to see their men Alexander, 32, and Vladimir, 33, who are waiting for them on the platform. A day before, Alexander and Vladimir were fighting fierce battles in Bakhmut. Now they have swapped their rifles for roses. The couples embrace silently, and depart for rented apartments on the outskirts.

Kramatorsk, an industrial city of 150,000 before the latest invasion, is reinventing itself as a romantic destination. On the front line since 2014, Russia's renewed onslaught in February 2022 brought its very existence into question. Within a few weeks, Kramatorsk's factories shut down and most of its civilian population fled. Now the city is profoundly militarised. But it exudes a new kind of energy as a romantic hub for soldiers who aren't allowed to travel far from fighting in Bakhmut and Avdiivka. There may be no hotels—they closed after one was bombed last summer—but a network of apartments, rentable by the day or hour, fills the gap. The city's tourist infrastructure—flower shops, gift shops, restaurants and cafés—has prospered.

Artyom, an estate agent, says he has done good trade ever since the Kyiv train started running again in October. Some 80% of his business is now short-term lets to soldiers and their partners; the rest is long-term accommodation for refugees. At 1,000 hryvnia ($27) for 24 hours, Artyom's going rate is twice the pre-war level, and as expensive as in parts of Kyiv. But demand is strong, fuelled by good military salaries. The women usually arrive on the express train on Saturday, he says, and stay for a day or two. "The town comes to life at weekends, with couples walking arm-in-arm through the park, even with the booms and sirens of war." The nearest Russian positions to Kramatorsk are 20km away, putting the city within easy range of multiple-rocket systems and S-300 missiles.

There is a lively market for commercial love, too. Two brothels have opened since the fighting began last year. One, tucked away in the city's industrial district, operates under the close watch of the army. On May 14th four soldiers waited in a queue outside the building. The madam was initially reluctant to admit them all—one was obviously drunk—but eventually did. This reporter was invited to sign up for a 4,000-hryvnia slot on the next day. Business is obviously thriving. "Now is not the time to tackle morality," says a military official. "The only thing we are concerned about is that the soldiers don't say things they shouldn't, and the girls don't pass on things to the enemy."

The source need not be too concerned. A conversation with the sex workers later reveals that they see themselves as integral parts of the war effort. "We are here to lift our wonderful boys' spirits," says Natalie, a blonde in her mid-20s. "They are defending us, and we want to help them in any way we can." Natalie says her collective works 24/7, through air raids, and has even done outcalls to positions nearer the front lines. Before Kramatorsk the women were based in Mykolaiv, another front-line city in southern Ukraine, but they moved when they heard that their regular customers deployed to Bakhmut: "We knew that many of them wouldn't return alive, and we wanted to be near them." The women say they frequently hear about clients who have been killed or severely injured.

Maniasha says her 18-year-old son is fighting in the army. She tried to stop him from enlisting, but is proud he did. Now, even the appearance of a young soldier at the brothel makes her cry. "You can't stop yourself thinking this lad will head to the front lines and never return," she says. "You do whatever you can to give him confidence, to caress him. You tell him he is a fighter, a hero." The encounters are not always about sex, says Natalie. "Sometimes the soldiers simply want the warmth of another human being." Bakhmut has traumatised many of them. "The psychological condition of those coming out of there is dreadful, just dreadful."

For the first time in months the news coming from the blackened town down the road is encouraging. An unexpected surge from Ukraine is turning the tide of the battle, a full 11 months after it began. Much of the high ground on the town's northern and southern flanks is now back under Ukrainian control. The Wagner mercenary group, the most aggressive of Russian forces, is much diminished; the Russians have been suffering staggering losses. Yet the Ukrainian soldiers returning after their weekends in Kramatorsk are guarded about any possible success. "It's a constant danger," says Alexander, who will be back at his position within two days. His wife, Viktoria, says the pair made many plans during their weekend together. "Love is a powerful weapon. It's the little fire that will keep my man alive." ■



Life goes on

Zaporizhia

Nuclear nightmares

KYIV

Fears about the largest reactor site in Europe continue to mount

SIGNS OF CHANGE abound at the Zaporizhia Nuclear Power Plant in occupied southern Ukraine. Workspaces house Russian troops. Soldiers cook barbecue and jog shirtless. Military vehicles dot the area. Some sit, along with ammunition, inside buildings. Animals periodically detonate landmines. Fewer employees are around. Before Russia seized the plant in March 2022, the staff numbered about 11,000. Today's figure is roughly 4,000. How troubling is all this?

Zaporizhia's six reactors are in shutdown mode and no longer generate electricity. But this has not ruled out a possible meltdown. The reactors are loaded with fuel that must be continuously cooled using electric power. But all but one of the facility's grid connections have been knocked out, and grid power has failed on six occasions. Each blackout left the operators around 90 minutes to prevent "six Chernobyls" by starting diesel generators to pump the water for cooling, as Rostyslav, a former plant engineer who asked his name to be changed, puts it. After a recent ultimatum to swear allegiance to Russia, he fled to Kyiv, Ukraine's capital.

Tasks now take longer. Even moving supplies, Rostyslav says, often requires lengthy negotiations with Russian commanders. More to the point, the bosses are in uniform and make decisions "from the point of view of military tactics", says Vadym (not his real name), a recently fired Ukrainian reactor engineer who lives in nearby Enerhodar, which is also occupied. Artillery has been positioned near reactors and cooling systems, he says. "If you take a photo, you will probably be shot."

Fire is a hazard. Soldiers smoke near lubricants and other flammables, reports Alina (also not her real name). Before losing her job at the plant for refusing to sign a contract with Rosatom, the Russian outfit that usurped Ukraine's Energoatom, she witnessed careless welding and wide use of portable stoves. Fire alarms regularly went off. Gunshots are another fire risk. Rostyslav recounts how soldiers once ran out of a building and began shooting at a drone. It turned out to be Russian.

Russia has blocked deliveries of spare parts from Ukraine since November. Alternatives from Russia are often inferior. That is not the only reason for the "huge deterioration" of equipment, says Petro Kotin, the president of Energoatom, which is based in Kyiv. With voltage transformers and many electronic systems shut off, moisture that would be kept out by heat is corroding components.

Maintenance is also behind schedule. Mr Kotin rattles off some problems. Plans have slipped for "passivation", the coating of metals to prevent corrosion. At a facility that holds 174 casks of nuclear waste, data analysis for safety is inadequate. So is training. The experts who used to train staff on three simulators have mostly gone or been redeployed. Even the 90 or so diesel generators need maintenance. They must be operated carefully, a source says.

Morale is low. "It feels like you're working in a concentration camp," says Rostyslav, who describes being tortured twice. Vadym declines to discuss the abuse he underwent, but estimates that perhaps 1,000 employees have spent up to a week in basement cells or pits in the dirt.

On May 12th the UN's nuclear watchdog, the IAEA, decried a dangerous lack of maintenance at the plant and an additional fall in staff numbers that appears due to evacuations this month from Enerhodar. Alina, who remains there, says Russia, preparing for a "hard attack" from Ukraine, is sending more troops and weapons to the plant. She hears artillery. One question on many minds, she says, is if Russian soldiers were forced to retreat from the nuclear plant, might they sabotage it first? ■

Italy

Calculated effort

ROME

For Giorgia Meloni, supporting Ukraine has useful benefits

PASSENGERS WAITING last month at Udine railway station in north-eastern Italy were astonished to see a slow-moving train rumble past carrying M109 howitzers, bound for Ukraine. A widely shared video gave Italians a glimpse of the reality behind their politicians' expressions of support for Volodymyr Zelensky's government. The shipment had in fact been authorised by the previous government of Mario Draghi. But Giorgia Meloni has maintained Italy's Ukraine policy since replacing him as prime minister last year.

Mr Zelensky's decision to begin his latest European tour in Rome on May 13th may thus have been an expression of gratitude to Ms Meloni. But it was also perhaps an attempt to shift Italian attitudes: a recent poll found more Italians (45%) opposing the arming of Ukraine than supporting it (34%). Ms Meloni's war policy is not without risk. But nor is it devoid of benefit on the wider stage. Ms Meloni, whose party traces its origins to neo-fascism, has had a mixed reception from her European counterparts.



Meloni's charm offensive

France has been especially hostile, criticising in particular Italy's tough policy on illegal migrants. That in part reflects French domestic politics: denigrating Ms Meloni implicitly discredits her fellow radical nationalist, Marine Le Pen. France's interior minister, Gérald Darmanin, clashed bitterly with Ms Meloni after her government sent an NGO vessel carrying rescued migrants onwards to France last year. He renewed his attack this month, saying her "far right" government was incapable of solving its migration problems. However, President Emmanuel Macron has since tried to dial things down, saying this week that Italy needs help in dealing with the latest wave of migration.

Support for Ukraine offers Ms Meloni an opportunity not only to limit Italy's marginalisation in the EU but to offset it with the approval of governments outside, notably in Britain and America. But it also gives her more room to adopt uncompromisingly conservative policies at home. Her main target has been Italy's LGBT community: the government plans to remove non-biological gay parents from birth certificates and make surrogacy abroad criminally liable in Italy. Ms Meloni has adapted to circumstances. But there is little sign that she has changed her core beliefs.

Charlemagne | Meet the de-growers

Stop the economy, lefty Europeans want to get off



IN 1972 A collective of grandees known as the Club of Rome set out to establish the limits to economic growth. Worried about the state of the planet, they fed a computer all they knew about farming yields, natural resources, population trends and so on. The rudimentary machine crunched the data and spouted a grim answer: given ecological constraints, the highest standard of living possible was one stagnating at half the American level of the time. Anything beyond that risked imminent disaster, a "sudden and uncontrollable decline in both population and industrial capacity".

Half a century later, the global population has doubled and GDP more than quadrupled: the limits to growth turned out to be as surmountable in the 20th century as they had been when first posited in the 18th. But anyone thinking that another 50 years of evidence might have settled the debate has not met the European left. At a three-day "Beyond Growth" conference held at the European Parliament in Brussels this week (and organised by 20 mainly left-leaning MEPs), an audience of youngsters whooped and cheered as speakers proclaimed that, this time, the limits of growth really *have* been reached. Driven by ecological concerns and riled by social injustice, to them the question is no longer how to mitigate the effects of human activity, for example by investing in green technologies. Rather, some form of "de-growth"—*décroissance*, in the original French—is necessary today to avoid societal collapse.

Human beings are born small and stop growing as adults, says Philippe Lamberts, co-head of the Green group in the parliament and the conference's leading light. Similarly, "when your economy is mature, well, it doesn't need to grow any longer." The metaphor falls short of what most economists would think of as convincing evidence. But it has clearly struck a chord. A similar growth-as-the-root-of-all-problems jamboree five years ago was sparsely attended and confined to the parliament's committee rooms. This time, thousands packed into the EU's vast hemicycle and beyond. The big beasts of Brussels came to pay homage, led by Ursula von der Leyen, president of the European Commission.

One participant gushed at being there at the "Woodstock for system-changers". That may be to overstate the impact that can be wrought by a cast of minor academics, trade unionists, green lobbyists and fellow-travellers on stage. Still, many a progressive idea has germinated in Europe, and Brussels is where some of them get turned into policy. So when those roaming its halls, even if only for a few days, discuss moving "from the welfare state to the social-ecological state", it is worth paying attention.

It turns out that the animus against economic growth comes in 50 shades of red. Some merely decry the use of GDP as the primary gauge of a society's success, pointing to how it fails to measure ills ranging from environmental degradation to slumping mental health. Fair enough. A bit further from the mainstream are the "post-growth" advocates, who think people can be just as happy with economies going up or down. If policymakers stop caring about ever-higher output, they can throttle bits of societal activity campaigners don't like, for example big cars, private jets and so on. Instead of trying to grow the pie, the idea is to take what there now is and share it more equally. One panel decried the "addiction of labour to growth" by advocating a four-day week. In the very seats where MEPs crafted rules for minimum wages, campaigners were discussing *maximum* allowable wages.

There is an even more exalted tier—the actual de-growers. By far the majority at the conference, their aim is to shrink the pie deliberately. Growth damages the planet, and only benefits the rich anyway, they maintain. The idea that emissions can be cut enough while economies keep growing is "a fairy tale" designed to prolong the neo-liberal world order. It is better—necessary, even—to force a diet now, and get rid of any aspirations for growth later. How, exactly? "We need to determine democratically what kind of production we need to be doing," and nix the rest, one participant advocated. Panels of citizens can advise what is wasteful and what is socially desirable. Any resemblance to some of the more stringent policies of the early Soviet era are presumably not intended.

A spectre is haunting economics

Sometimes utopians fail to notice that they have already reached the promised land. For what is Europe, if not a post-growth continent already? Parts of it, like Italy, are scarcely bigger than they were 20 years ago. Yet, somehow, that has not prompted the contemplative contentment that the de-growers expect. It turns out voters do not much like stagnation; the newish premier, Giorgia Meloni, rails against "Greta Thunberg's ideology" killing jobs.

Where the growth-sceptics are right is that the environment has suffered as GDP has soared. But they too readily dismiss the obvious solution, which is to green the economy, not throttle it. As Mrs von der Leyen explained to the sceptical crowd, her political breed already accept that the old economic model centred on fossil fuels is "simply obsolete". Europe wants to cut the carbon it spews into the atmosphere by over half by 2030 compared with 1990—it is busily enacting law after law to reach the target—and to reach net-zero carbon emissions by 2050. Already, its emissions are coming down even as the economy is growing. That is a remarkable pivot for a continent whose prosperity was built through burning coal, oil and gas. To dismiss such efforts as "greenwashing", as de-growers do, is an over-statement.

Beyond the confines of the conference, Europe is grappling with near-intractable problems. How much can it spend to assist Ukraine as it fends off Russian aggression? How will Europe's welfare state be financed as society ages? How can the best ideas to continue decarbonising the economy be turned into reality? Finding suitable solutions will require hard graft and much human ingenuity. That is the very stuff that economic growth is made of. The more of it, the better. ■



Policing

Out of order

The right to protest has long had limits. But Britain's Public Order Act goes too far

Over the past year British environmental protesters have pulled off some spectacular—and spectacularly aggravating—feats. At the National Gallery they upended a can of tomato soup over van Gogh's "Sunflowers" before gluing themselves to the wall. On the M25 they climbed the gantries, forcing the motorway to close for hours. They have tunnelled beneath railway lines and chained themselves to bridges, halting construction and traffic.

On May 2nd, in an attempt to curb this sort of behaviour, the government implemented the Public Order Act, which makes it a criminal offence to obstruct major transport works and interfere with "key national infrastructure". It also makes it an offence to "lock on" to "another person, to an object or to land" in a way that could cause "serious disruption" to two or more individuals or an organisation. More significantly, it criminalises the mere act of carrying locking-on equipment "with the intention" to use it for this purpose.

Civil-rights groups describe the law, which also gives the police new powers to stop and search, as draconian. Volker Türk, the UN High Commissioner for Human Rights, said it imposed "serious and undue restrictions" on freedom of expression. Both it and another law passed in April 2022, that gave police powers to restrict public assemblies, have fuelled fears about the erosion of civil liberties in Britain. Planned legislation—from a minimum-service-level law, that would curtail the ability to strike, to an online safety bill, which could limit freedom of expression—show that the government is "inherently censorious", says Mark Johnson of Big Brother Watch, a civil-liberties group.

The first (recorded) use of the Public Order Act was seized upon by critics. On the morning of May 6th, the day of King Charles III's coronation, the Metropolitan Police used the law to arrest six members of Republic, an anti-monarchy group. It judged, it said, that "items" found among the group's "Not my King" placards, might have been intended for some sort of locking-on offence. It released the protesters without charge 16 hours later.

It is not uncommon for the police to make arrests that are not followed by charges. They may be more likely to do so at large public gatherings. Policing protests is tough and doing so at big, globally televised events especially so. Had the Met allowed protesters to block the king's procession route, say, it would have been savaged. Sir Mark Rowley, the Met's commissioner, has said intelligence led it to fear widespread disruption was planned.

And although the right to protest is a fundamental part of a liberal democracy, the law has long placed limits upon it. The Human Rights Act 1998 both upholds that right and talks about "lawful restrictions" necessary to protect "national security or public safety", "the rights and freedoms of others" and to prevent "disorder or crime". On the day of the coronation dozens of people were also arrested for breaking older laws, including the Public Order Act 1986, which stops people causing "harassment, alarm and distress", and for breaching the peace (the 1936 version).

Yet the new Public Order Act goes too far. By giving police power to arrest people ▸▸

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for carrying locking-on equipment, which could cover anything from bike locks to glue, it risks criminalising peaceful protest to a degree that many lawyers say is unacceptable. "Everyday items could potentially be relied upon by police as a reason to arrest," says Kirsty Brimelow, a barrister and chair of the Criminal Bar Association. The vague yet broad wording of this part of the Public Order Act exacerbates the risk, she says. "Laws need to be clear."

Further indicators of the Home Office's authoritarian tendencies have emerged in the days following the coronation. On May 11th the House of Lords said that the government department had tried to reintroduce as secondary legislation (a process which allows the government to modify laws with less scrutiny) parts of the Public Order Act that Parliament's upper chamber had rejected in February.

These elements include reducing the threshold for "serious" disruption, thus allowing the police to intervene in more circumstances. Lord Thomas of Cwmgiedd, a previous lord chief justice, said that this appeared to be the first time a government had tried to change the law through secondary legislation "even though those same changes had been rejected by Parliament when introduced a short while before in primary legislation".

None of this may matter much to most voters. A YouGov poll published on May 11th found that only three in ten Britons thought the police were too harsh on the day of the coronation. That may help explain why Sir Keir Starmer, the Labour leader, has said he won't repeal the Public Order Act. Sir Keir, anxious to sidestep Tory claims he is soft on crime, has said the law needs time to "settle in".

Richard Ekins, a law professor at Oxford and head of the judicial power project at Policy Exchange, a centre-right think-tank, says the law's inclusion of a "reasonable excuse" defence means it will often be "difficult for police to know whether an arrest will be lawful and, especially, whether a prosecution is likely to succeed". Far from being authoritarian, he argues, the law is a "feeble" attempt at reform.

A law does not need to put people in prison to cause damage, however. This one risks further eroding trust in the police. Following a serious of dreadful scandals at the Met, Sir Mark has said he wants to restore "policing by consent". Increasing the police's powers with a badly written law seems unlikely to achieve that.

More worrying, perhaps, the law seems likely to deter some people from protesting at all. Some activists, who reckon that getting arrested, ideally on film, is part of the point, may step up their actions. Others, fearful that joining a march or waving placards may leave them with a criminal record, may decide to stay at home. ■

Family dynamics

Home, still home

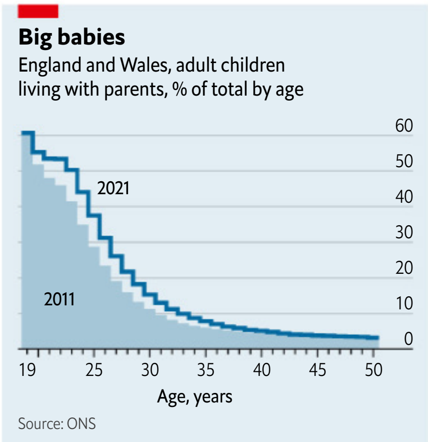
Why are more British adults still living with their parents?

TWENTY-THREE YEARS ago, a man in his 30s greeted the millennium "in despair. I'm a single parent, I live with my mother…I need a Life Plan." Adrian Mole was fictitious: his bestselling comic diaries were a vessel for Sue Townsend's anger at the inequalities and hypocrisies of late 20th- and early 21st-century Britain. But real Adrians are becoming more common.

The Office for National Statistics (ONS) says the census of England and Wales in March 2021 found 4.9m adult children living with their parents, up from 4.2m in the 2011 survey. Most people in their early 20s, and more than one in ten of those in their early 30s, have yet to fly the nest (see chart). And that does not even count the Adrians: the tally includes only childless, single adults. Multi-family households (containing couples or lone parents under a shared roof) made up 1.4% of all households in 2021, up from 1.2% in 2011.

Granted, in some other countries grown-up children are even more reluctant to move out: two-thirds of young Italian adults live at home. But why are young Britons staying longer than they used to?

There are many reasons why adults live with their parents: they are likelier to be unemployed, or to be students or carers, than those with places of their own. You might suppose that the covid-19 pandemic had caused more youngsters to stay or return home. Perhaps, but the ONS says that



around 90% of adults living with their parents had done so for at least a year, the same as in 2011. Nor does ethnicity seem to explain the shift. The share of multi-generational Asian households, the highest among any ethnic group, fell.

The likeliest explanation is that many young adults cannot afford to buy or rent their own homes. In the first 20 years of the century, according to *The Economist*'s house-price index, British property prices almost doubled. According to Halifax, a lender, the average age of first-time buyers is now 32. Not surprisingly London, which has the priciest housing, also had the highest proportion of households with grown-up children: 26.8%. In the borough of Brent, in the north-west of the city, the share was almost one in three.

The squeeze on housing costs and living space is tightest in poor households. Not only are rents high, says Molly Broome of the Resolution Foundation, a think-tank, but for many years the provision of social housing—for which many young people on low incomes would have been eligible in the past—has failed to keep pace with demand. Local Housing Allowance (a rent subsidy), which was increased at the start of the pandemic in 2020, has been frozen since then.

Lone parents were likelier than couples to have adult children at home. In London, more than half did. Homes with grown-up children are more likely to be classed as overcrowded—meaning, for example, that adults not in a couple, or more than two teenagers of the same sex, share a bedroom. In London almost one in four families with adult children was overcrowded, against one in 15 in north-east England.

Since the census was taken, double-digit inflation, and especially rising rents and mortgage rates, have added to young people's incentive to stay in the parental home while they save. They may—or may not—find comfort in what became of Adrian Mole. Townsend's diarist did eventually find a home of his own: a converted pigsty. His parents lived in another, next door. ■



A room with an eww

Bagehot | Truss Tour: 2023

The Conservatives, and Britain, would rather forget about Liz Truss. She won't let them



Every former prime minister receives protection for the rest of their life. When Sir John Major (prime minister, 1990-1997) heads for fish and chips in Cromer he is accompanied by two bored men in Barbour jackets, who have to check in case someone malevolent lurks in Norfolk. Theresa May (prime minister, 2016-2019) is accompanied by a small phalanx as she marches through Parliament or hosts a constituency surgery in leafy Maidenhead.

Liz Truss (prime minister, September 6th to October 25th 2022) is afforded the same privilege, although her bodyguards are being kept altogether busier. Ms Truss is on tour. From Copenhagen to Taipei, the former prime minister has embarked on a trip round the globe to chide the enemies of freedom and to call on Western leaders to stand up to China. She does so with the glee of someone writing cheques that others have to cash.

Being a former prime minister comes with perks beyond having two trained killers trail your steps. Invites flood in. A former G7 leader is a former G7 leader, after all. At the Copenhagen Democracy Summit on May 15th, Ms Truss called for Western countries to form an "economic NATO" to face up to China. Two days later she rocked up in Taiwan, where she was a guest of the government, to warn that the West was already in a "cold war" with China.

Given her record, it may seem surprising that people listen to her. But such forums are scrupulously polite. Ms Truss may be the least successful prime minister in British history but few of the assembled lanyard-ocrats in Denmark mention it. Her biography in the agenda for the event in Copenhagen was mercifully brief on the rash tax cuts that caused her speedy downfall last autumn: "Regrettably these reforms did not command sufficient political and economic support." The tone is similar to that of the Japanese emperor who declared that "the war situation has developed not necessarily to Japan's advantage" after America dropped two nuclear bombs on the country.

It helps that foreign-policy hawks are evangelists, with anyone who expresses the faith being welcome. Anders Fogh Rasmussen, the former NATO general secretary who invited her to Copenhagen, said that her record as a sabre-rattling foreign secretary justified her presence. Ms Truss, however, was also having fun. "I'm enjoying freedom at the moment, being able to do things I wasn't able to do when I was in government," said Ms Truss. "I would have loved to visit Taiwan; I wasn't able to because of our policy." She is experiencing the politician's equivalent of the Make-A-Wish foundation. Much as the terminally ill are granted an audience with The Rock or allowed to score a goal at Wembley, Ms Truss can now fly to Taiwan and tell Xi Jinping to shove it.

Ms Truss may be having a whale of a time, but others should be perturbed. She is emblematic of deeper problems. For starters, her complaints about having no control in government is a common one among Tory ministers. An epidemic of learned helplessness dogs the cabinet. Rather than solve problems or change policies, Conservative ministers moan. Ms Truss complained about having little say on foreign policy even while technically in charge of it. Michael Gove, the minister responsible for housing, bemoans the fact that there is too little housing. Suella Braverman, the home secretary, froths that as many as 1m people migrated to Britain last year, without mentioning that she is responsible for immigration policy. Ms Truss was the apogee of politics without policy—an approach still too common in the party.

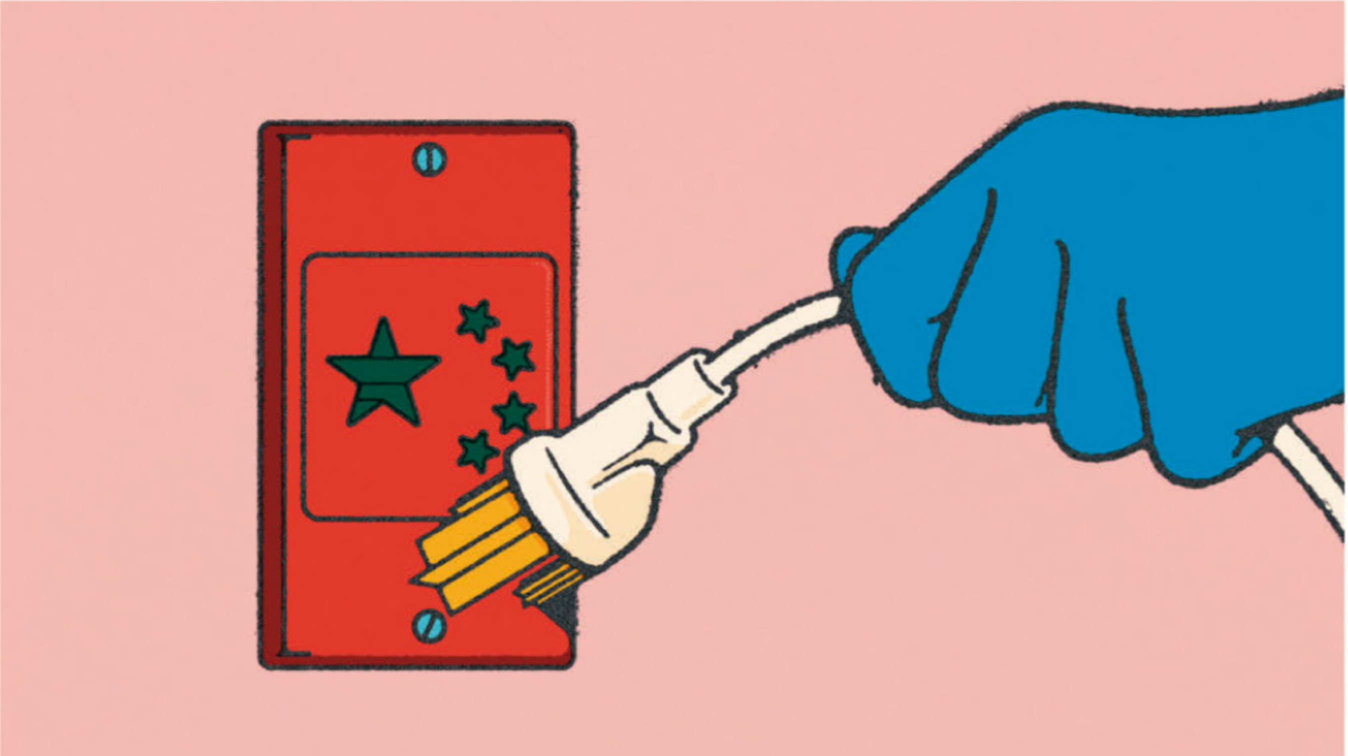
Nor is Ms Truss a maverick, who can be easily dismissed. Ms Truss is a problem for the Conservative Party not because she is the exception but because she is the rule. It is her vision of low taxes at all costs that still enthralls a certain wing of the party. Her hawkishness may cause those in government to wince but make those on the backbenches cheer. She was the party's first choice for prime minister last summer, before the financial markets intervened. Ms Truss may be gone, but her ideas do still live on.

That is not just a problem for the Conservatives but for the country at large. For the Foreign Office, Ms Truss is a private citizen. Anyone is free to fly to Taiwan and say what they like. But few do so with armed bodyguards paid for by the British state. Ms Truss is the first former prime minister to have visited Taiwan since Margaret Thatcher in the 1990s (and Thatcher had a far more doveish approach). She is a dangerous Rorschach test: one Chinese viewer may see an irrelevant politician, another may see a stateswoman speaking on behalf of a nation. One is harmless; the other potentially very harmful indeed.

A minibus of back-seat drivers

Britain is represented by its former leaders—for good or ill, whether they served in Downing Street for years or just a month. After recent political ructions, there is now a glut of ex-prime ministers hovering over British public life, often with decades to live. Each provides a blueprint on how to handle it: some good, some bad. Sir Tony Blair only became truly unpopular once he had left office, thanks in part to high-profile and well-paid work with some unsavoury regimes. By contrast, Gordon Brown's reputation has improved, largely because he has kept his head down apart from issuing the occasional worthy report on suitably sturdy topics such as constitutional reform.

On the Conservative side of the house, Theresa May has played an admirable role on the backbenches, emerging like a submarine to try to torpedo bad ideas such as deporting asylum-seekers to Rwanda. Boris Johnson has chosen another route: he intervenes only if he thinks it will benefit his slim chances of returning to power. Ms Truss still has the opportunity to salvage something of her reputation. There is room for someone to advocate for a smaller state or the supply-side reforms that Britain needs. Even a more hawkish foreign policy has its place. But perhaps not in Taiwan. For the sake of her jet-lagged bodyguards, at the very least. ■



Europe and China

Why unplugging is so hard

BERLIN, BRUSSELS AND PARIS

We calculate Europe's exposure to China

How should Europe handle China? The continent is trying to decide. After decades of pursuing trade, Europeans are pondering how much to decouple. Their closest ally, America, wavers between China-bashing and war talk on the one hand, and de-escalation and partial detente on the other. Individual European countries struggle to agree with each other.

Last week Josep Borrell, the EU's chief diplomat, urged Europe's foreign ministers in a letter to find "a coherent strategy" in the face of "a hardening of the US-China competition". But it is far from clear what that strategy might be, or whether Europe would remain so closely aligned with America in the event of a war over Taiwan.

An awkward procession of Europe's leaders to Beijing in the past few months points to the lack of a plan. Germany's Olaf Scholz paid a visit accompanied by business leaders in November; his foreign minister, who is from a different political party, went last month and struck a tough tone. Spain's prime minister, Pedro Sánchez, went to open doors to his country's trade. Emmanuel Macron ostentatiously sought to strike a partnership with Xi Jinping. The French president took 53 corporate bosses with him, and insisted that Europe distance itself from Sino-American tensions and from a conflict over Taiwan. His clumsy comments caused an uproar in Europe and America.

The war in Ukraine has complicated matters further as the mood has turned against autocracies. Most countries on the EU's eastern flank—which once opened their arms to Chinese investors—have become hawkish. "Russia's invasion of Ukraine had a sorting effect in Europe when it comes to China," says Janka Oertel of the European Council on Foreign Relations, a think-tank. It seems that those in the east are as leery of the "no-limits" friendship between Moscow and Beijing as they are of Mr Macron's talk of "strategic autonomy" from America. Meanwhile, everyone knows that China remains keen to exploit transatlantic differences.

Finding common cause is onerous because it is hard to tell what America wants. Jake Sullivan, President Joe Biden's national security adviser, and Janet Yellen, the treasury secretary, have each recently distanced the Biden administration from hard talk of "decoupling", in favour of "de-risking"—a term also used in the past few months by Ursula von der Leyen, the head of the European Commission. (She had intended to distinguish Europe's policy of managing risk from what seemed to be a tougher American approach akin to economic divorce.) Yet it is not long since the spy-balloon episode, when US-China relations hit a 30-year low. Congress and public opinion in America are hostile to China. Tensions may rise during the election campaign in 2024, and a pugnacious Republican, perhaps Donald Trump, may win.

Attachment styles

All this makes it urgent for Europe to devise a coherent China policy. Its leaders need to work out how far they want to reduce its dependency on China, and in so doing also respond to the hundreds of billions of dollars in green-industry subsidies unveiled last year in America's Inflation Reduction Act. They also need to decide what they would do if America became more demanding. In an extreme case, in the event of a war over Taiwan, Europe might be expected to impose sanctions on China like those it has slapped on Russia, and to back a military campaign. Some hope that the new doctrine of de-risking is a compromise that solves the dilemma. Others fear that it will prove meagre and inflexible in the face of changing technological and geopolitical realities. ▸▸

Europe is more economically exposed to China than America is. Some 8% of publicly listed European firms' revenues are from China, compared with 4% for American ones, according to Morgan Stanley, an American bank. Europe and America send a similar share of goods exports to China (7-9%), but because Europe is a more trade-intensive economy its sensitivity is higher. Multinational investments in China are worth 2% of Europe's GDP compared with 1% for America.

To form a holistic view we have come up with a yardstick of "total China exposure" (see chart 1). This has three elements: exports of goods, exports of services and the sales of Western-owned subsidiaries in China. These figures are for 2020, the last year for which data are available. The services and subsidiaries data include Hong Kong. We define Europe as its six largest economies, including Britain. We measure each country's exposure as a share of its own economy.

The European big six's total China exposure has hit 5.6% of their combined GDP, up from 3.9% in 2011. That is higher than America's at 4.2%. There is a big range: Italy and Spain are at just 1-2%, France and Britain are at 4-5%. Germany is a huge outlier at 9.9%. Two-thirds of the European big six's exposure is from the sales of subsidiaries in China rather than from exports from Europe. Often these are the Chinese arms of industrial giants such as Volkswagen and BASF.

In the event of a "rigid" fragmentation of supply chains, the eurozone's gross national expenditure would drop by over 2%; roughly double the amount America's would, according to the European Central Bank. Germany's fall would presumably be higher. Similarly, an IMF study in April found that in the event of an investment split between the West and China, European GDP would fall by 2%, more than twice the hit to America. In addition, a separation would cause a crisis at some leading European firms that rely on China, including Germany's carmakers, France's luxury empires and two British banks.

The emerging policy of de-risking refers to a calibrated reduction in links with China, rather than a wholesale economic decoupling. Even this is a big departure from how things were a decade ago. Back then European businesses were still stuffing their order books with Chinese contracts, suppressing their doubts about rising industrial competition. Overall trade between China and the EU grew 428% between 2002 and 2019.

An EU strategic paper four years ago marked the first stage of the pivot. It argued that China was not just a partner and an economic competitor, but a systemic rival. The effects were swift. Capitals across Europe, which flogged ports and other infrastructure to Chinese investors, started to have second thoughts.

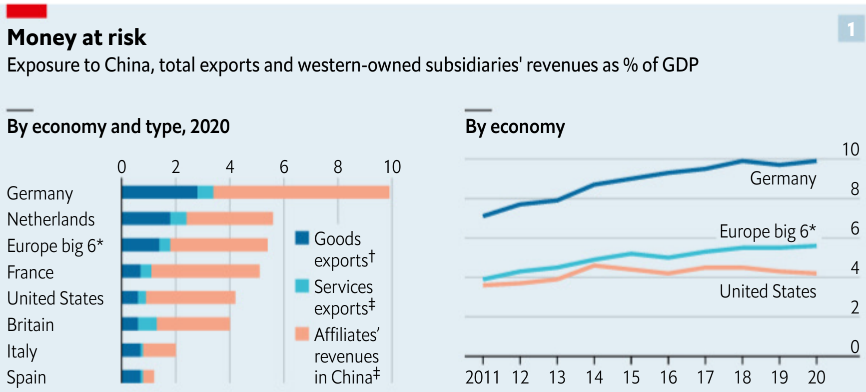
To America's delight, many countries in Europe began to prise Huawei from their 5G networks (though Germany still let the Chinese telecoms firm in). Remonstrations over human-rights abuses, particularly of Uyghurs in Xinjiang, grew louder. Supply-chain glitches during the pandemic showed the perils of relying too much on Chinese industry. The Sino-EU "Comprehensive Agreement on Investment", struck in December 2020, was put to one side by Europe. And China's declaration of a "no-limits" friendship with Russia just weeks before the invasion of Ukraine soured the mood further.

Mrs von der Leyen thinks that de-risking is the next step, and one that Europeans can agree on. But what it means in practice has yet to be clearly defined. It does not mean shutting the door to China altogether. It is partly about diversification, bolstering economic security and eradicating forced labour from supply chains. It is also focused on security concerns: hampering China's ability to get its hands on security-relevant technology such as quantum computing, which threatens encryption, or semiconductors for military purposes.

Like America, Europe is most strategically vulnerable when it comes to its critical dependence on China for certain supplies. In 2022 China mined nearly three-fifths of global rare-earth elements, used as components in electronic equipment. It also refined 60% of the world's lithium and 80% of its cobalt, two core inputs for the production of high-capacity electric batteries. Europe imports 98% of its rare earths from China, even more than America, which imports 80% from the Asian power. According to a study by MERICS, a German think-tank, the EU relies on China for 97% of its chloramphenicol, used to manufacture antibiotics. For America, the figure is 93%.

Money at risk

Exposure to China, total exports and western-owned subsidiaries' revenues as % of GDP



*Britain, France, Germany, Italy, Netherlands, Spain
†Mainland China only ‡Including Hong Kong

Sources: OECD; Bloomberg; IMF; Eurostat; *The Economist*

Just friends

European firms have already been diversifying suppliers since the pandemic, "friend-shoring" to allies, and "near-shoring" closer to home. America's energy secretary also declared in March that the Biden administration wanted supply chains in countries "whose values we share." "All of us learned from covid-19 that we have to double- and triple-source, and not only from China," says a French corporate titan. Firms are looking to India, Mexico, Morocco, Norway and Turkey, among others. Policymakers are pushing in the same direction. The EU has unveiled a Critical Raw Materials Act, designed to ensure that no more than 65% of annual consumption of any listed material should be sourced from any single country by 2030.

In the realm of technology European firms that are embedded into America's technology industry are mirroring American export controls. ASML, a Dutch firm which makes equipment used to build semiconductors, has limited the sale of its cutting-edge machines to China. Europe's multinational companies are adjusting how they operate in China, too. In some cases they are divesting. In others they are making subsidiaries in China more self-sufficient, with a higher share of inputs and sales made locally. One measure of this is the share of investment by subsidiaries in China financed from their own profits, rather than from capital sent from Europe. For German subsidiaries in China this has risen from 2% in 2002 and 52% in 2012 to a new high of 85% in 2022 (see chart 2).

If these Chinese subsidiaries were perfectly self-sufficient they could in an extreme scenario be separated from the European parent, with both arms able to continue to operate: think of VW Germany and VW China. The result would be huge wealth destruction for shareholders in big European firms (many of whom are not actually European) but less damage to Europe's economy. In practice this shift to "one company, two systems" is only just beginning and for many large firms decoupling would be severely disruptive.



A final element of de-risking is stricter screening of Chinese investment coming into Europe. Strategic infrastructure is increasingly off-limits for Chinese investors, as inward investment in Europe is screened for security risks. Overall Chinese investment in Europe last year fell to its lowest point since 2013, according to a study by MERICS and Rhodium Group, a consultancy based in New York. China's foreign direct investment peaked in Europe back in 2016, Rhodium estimates.

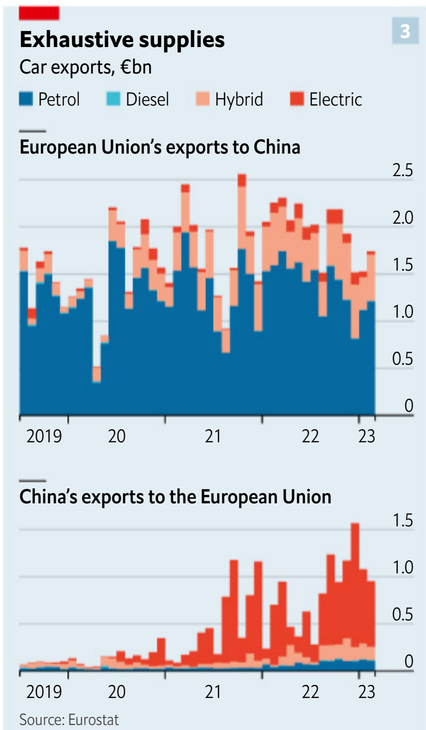
The emergence of de-risking is understandable, but Europe's middle way is riddled with potholes. Big companies, still keen on the China dream, may refuse to go along for the ride. "There are certain no-go areas on tech in China," says one senior European industrialist, "but on the rest we are not decoupling; it is business as usual, and the more the better." When Mr Macron was in Beijing, Airbus, a European aircraft manufacturer, agreed to expand an assembly line in Tianjin, and confirmed an order to sell China 160 planes.

De-risking may also struggle to adapt to technological change and its commercial effects, which can create new links even as old ones are dismantled. Cars are a good example. The EU exports almost no electric vehicles to China. Yet almost all of China's car exports to the EU, many of which are made for European brands, are battery-powered (see chart 3). Exports have shot up from less than €100m ($112m) a month before the pandemic to around €1bn a month now. As Europe's motorists seek greener transport, China is both eager and well positioned to flood the continent with cheaper electric models.

The greatest weakness of de-risking in its current guise is that it little prepares Europe for the shock that would follow an attempt by China to seize Taiwan. Europe's armed forces and its defence industry are already stretched, and the continent would struggle to find the capacity to provide much military support to America and Taiwan. Its leaders have little appetite for involvement in another war. But America would probably expect Europe to enforce the kind of embargo put in place on Russia. That would hurt American firms: despite Apple's efforts to diversify its production to India, the tech giant still relies on China. But it would harm Europe more, causing a bigger economic hit and destabilising more companies.

Mr Macron's recent suggestion that Europe should not follow America's lead on Taiwan, in case it is dragged "into crises that are not [its] own", delighted Beijing and dismayed European capitals. Gabrielius Landsbergis, Lithuania's foreign minister, retorted tartly that, at a time when Europeans depend on America's backing of Ukraine, they should be trying to preserve transatlantic unity rather than "begging for dictators to help secure peace in Europe".

Officials in Paris note, as Mr Macron eventually did, that it is official French policy to support the status quo over Taiwan. With naval bases and territories in the Indo-Pacific, France has direct interests in the region. "The problem isn't French policy but the disconnect between what we do and what Macron says, which creates unnecessary doubts among our partners," notes Antoine Bondaz, at the Foundation for Strategic Research, a French think-tank.



One virtue of Mr Macron's comments, notes a Scandinavian minister, is that they have prompted Europeans to talk more about China. Many on the continent fret about escalatory American rhetoric. On May 12th the EU's foreign ministers managed to agree to a set of principles for future dealings with the country. It will be discussed at the EU's next summit in June.

The bloc's deliberations in the coming months will depend heavily on France and Germany, which are its two biggest economies, and among the most exposed to China, and some of the least keen on cutting commercial ties. Mr Macron has long pushed Europe to become more self-reliant. Mr Scholz, faced with divergent views in his coalition government and a strong industry lobby, is still working on a national strategy that will shape Germany's approach to China (which keeps on being delayed). He is expected to host a bilateral summit with the country next month.

Much of eastern Europe seems wary of Chinese influence. The country's bullying of Lithuania in recent years over a Taiwanese diplomatic office in the country disgusted many. That is in spite of the fact that central and eastern Europe received some €3.8bn through China's clubby "16+1" initiative between 2000 and 2017. Comments made last month by Lu Shaye, the Chinese ambassador to France, helped focus minds. He appeared to dispute the legal status of all former Soviet countries (even if China later corrected his remarks).

The end of the affair?

Europe needs a measured debate about what to do next. France and Germany both have reservations about Mrs von der Leyen's de-risking measures, but they back the principle. Outward investment screening is under discussion, though will be difficult to put into practice. Inward investment screening is up and running, although Europeans disagree on how much to tighten the rules.

Beyond de-risking, collective EU policy has not been thought through. That is in spite of the fact that de-risking doesn't provide an answer to a scenario in which relations between America and China were to rupture. Since Russia invaded Ukraine, the transatlantic alliance has stood remarkably firm. A Chinese move on Taiwan would prove an even more dangerous, and far more difficult, test. ■



Corporate finances

The great debt hangover

After a borrowing binge, businesses are in for a mighty headache

It has been a jittery few months for the economies of the West. First came the nerve-rattling crisis in the banking sector. Then came the as-yet-unresolved prospect of a default by America's government on its supposedly risk-free debt. Many now fret over what other hidden dangers lie in wait.

An understandable area of concern is the hefty debts racked up by non-financial companies in recent decades, courtesy of historically low interest rates. Since 2000 non-financial corporate debt across America and Europe has grown from $12.7trn to $38.1trn, rising from 68% to 90% of their combined GDP. The good news is that hardy profits and fixed-rate debts mean the prospect of a corporate-debt-fuelled cataclysm in the West remains, for now, mercifully slim. The bad news is that businesses will soon find themselves waking up to a painful debt hangover that will constrain their choices in the years ahead.

The West's corporate-debt pile has so far proven less wobbly than many feared. On both sides of the Atlantic roughly one-third of debt covered by credit-rating agencies is deemed to be speculative grade, less charitably known as junk, with iffy prospects of repayment. The default rate for those debts remains at a comfortable 3% in both America and Europe (see chart 1 on next page). A pandemic-era spike in downgrades from the more reassuring investment grade down to speculative has also since been largely reversed.

The explanation for the resilience is two-fold. First is better-than-expected corporate profits. According to *The Economist*'s calculations, earnings before interest, tax, depreciation and amortisation of listed non-financial firms in America and Europe were 32% higher in the final quarter of 2022 than in the same period in 2019.

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Some of that is thanks to bumper profits in the energy industry, but not all. Companies from McDonald's, a fast-food chain, to Ford, a carmaker, handily outperformed analysts' expectations on earnings in the first quarter of this year. Procter & Gamble, a consumer-goods giant, and others have successfully protected profits in the face of cost inflation by jacking up prices and cutting expenditure. That has left plenty of money to continue paying interest bills.

The second factor is the structure of corporate debt. In the years after the financial crisis of 2007-09, many firms began opting for long-term fixed-rate debts, notes Savita Subramanian of Bank of America. Today three-quarters of non-financial corporate debt in America and Europe is on fixed rates, according to S&P Global, a rating agency.

Rock-bottom interest rates at the height of the pandemic created an opportunity to lock in cheap debt for many years. Only a quarter of the combined debt pile of American and European companies will mature in the next three years (see chart 2). The average coupon rate that issuers actually pay on American investment-grade corporate bonds is currently 3.9%, well below the yield of 5.3% that the market is pricing in at the moment. For high-yield speculative bonds, the average coupon rate is a manageable 5.9%, compared with a market yield of 8.4%.

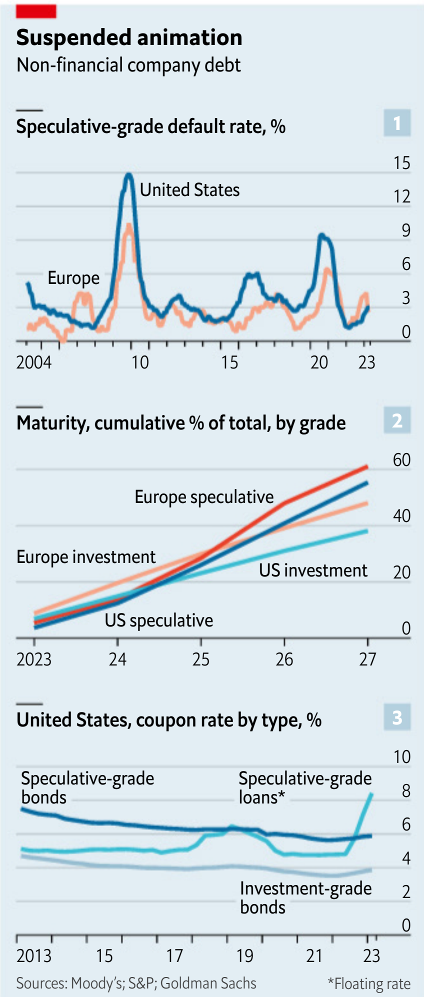
Comforting stuff. Yet businesses and their investors would be wise not to take too much solace. GDP growth in America ▸▸

and Europe continues to slow. Analyst estimates suggest that aggregate quarterly earnings declined in the first quarter of this year for listed non-financial firms in both America and Europe. The Federal Reserve and its European counterparts are still raising interest rates. In March Multi-Color Corporation, an American label-maker, issued $300m of bonds at a hefty 9.5% coupon rate. Firms like Carnival, a cruise-operator, are drawing on cash buffers built up during the pandemic to delay refinancing at higher rates. Such nest-eggs are steadily dwindling.

The morning after

The strain will begin at the flakiest end of the debt spectrum. Less than half of speculative-grade debt in America and Europe is on fixed rates, according to S&P Global, compared with five-sixths for investment-grade debt. Goldman Sachs, a bank, reckons that the average coupon rate on speculative-grade floating-rate loans in America has already soared to 8.4%, up from 4.8% a year ago (see chart 3).

Floating-rate debt is common among the most indebted firms, and particularly in businesses backed by debt-hungry private equity (PE). Although some PE funds hedge against higher interest rates, the squeeze is already beginning. Bankruptcies of PE-owned businesses in America are on track to double from last year, according to S&P Global. On May 14th Envision Healthcare, a provider of doctors to hospitals, declared bankruptcy. KKR, a PE giant, paid $10bn for the business in 2018, including debt. It is expected to lose its $3.5bn equity investment.



Suspended animation
Non-financial company debt
Sources: Moody's; S&P; Goldman Sachs *Floating rate

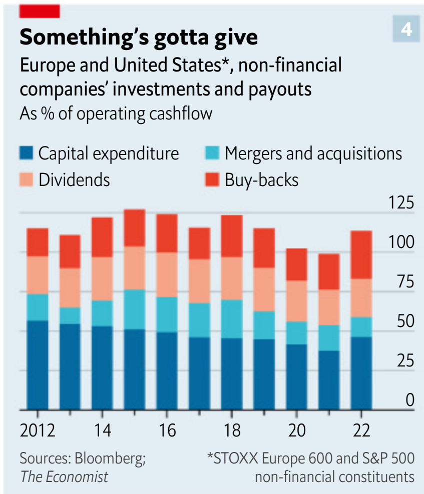
That will make for an uncomfortable ride for the pension funds, insurers and charitable endowments that have entrusted money to the PE barons—not to mention for the financiers themselves. Fortunately, for the economy more broadly the effect seems likely to be contained. PE-backed businesses employed around 12m workers last year in America, according to EY, a professional-services firm. Listed companies employed 41m.

Indeed, it is the effect of rising interest rates on large listed corporations, whose debts are mostly investment-grade, that may be the most consequential both for investors and the economy. The S&P 500 index of large American firms accounts for 70% of employment, 76% of capital investment and 83% of market capitalisation of all listed companies in the country. The equivalent STOXX 600 index in Europe carries similar weight in its region.

In the years leading up to the pandemic the non-financial companies in these indices consistently splashed more cash on capital investments and shareholder payouts than they generated from their operations, with the gap plugged by debt (see chart 4). But if they wish to avoid a sustained drag on profitability from higher interest rates, they will soon need to start paying down those obligations. At current debt levels, every percentage-point rise in interest rates will wipe out roughly 4% of the combined earnings of these firms, according to our estimates.

Many businesses will have no choice but to cut back on dividends and on share buy-backs, which will squeeze investor returns. This is bound to prove especially painful in the spiritual heartland of shareholder capitalism. High payout rates in America—equivalent to 63% of operating cashflow, compared with 41% in Europe—have helped push American share prices relative to earnings well above those in most other markets. Borrowing money in order to fork it out to shareholders suddenly makes far less sense in a world of higher interest rates, argues Lotfi Karoui of Goldman Sachs.

Plenty of companies will also find themselves forced to scale back their investment ambitions. Semiconductor firms swimming in overcapacity have already cut back on spending plans. Disney, a media titan with hefty debts, is cutting



Something's gotta give
Europe and United States*, non-financial companies' investments and payouts
As % of operating cashflow
Sources: Bloomberg; *The Economist* *STOXX Europe 600 and S&P 500 non-financial constituents

investments in its streaming services and theme parks. From decarbonisation (see next article) to automation and artificial intelligence, businesses face an expensive to-do list in the decade ahead. They may find their grand ambitions in such areas derailed by the indulgences of yesteryear. That would be bad news for more than just their investors. ■

Net-zero flying

Green-sky thinking

The technology and economics of aviation make decarbonisation hard

FLYING IS A dirty business. Airliners account for more than 2% of the annual global emissions from the burning of fossil fuels, many times commercial aviation's contribution to world GDP. Two forces will push this figure up in the years to come.

First, people love to fly. IATA, the airline industry's trade body, predicts that 4bn passengers will take to the skies next year, as many as did in 2019, before covid-19 temporarily grounded the sector. Airlines could be hauling around 10bn passengers by mid-century (see chart 1 on next page). Boeing, an American planemaker, estimates that this will require the global fleet to roughly double from around 26,000 in 2019 to 47,000 by 2040. After a pandemic blip, investors are more bullish again about the sector's prospects (see chart 2). Showing its confidence, on May 9th Ryanair, a giant of low-cost air travel, placed an order worth $40bn for 300 new Boeings.

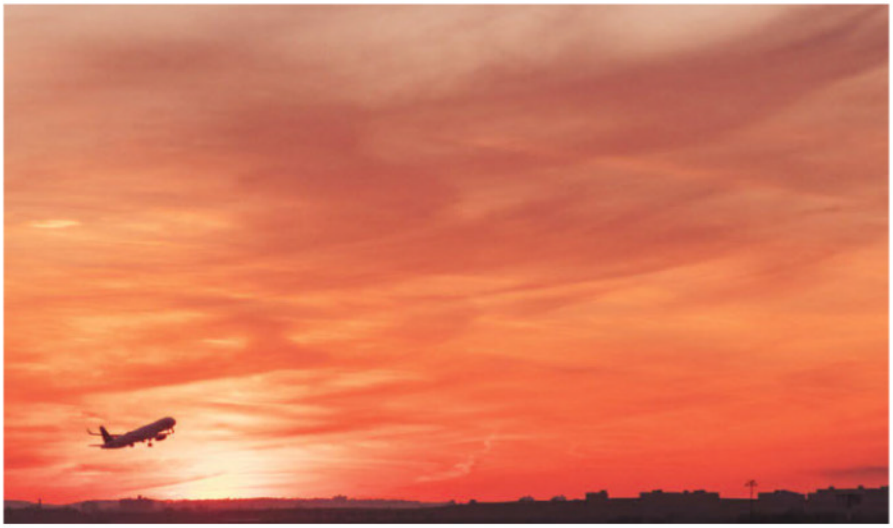
Second, as other carbon-belching industries, from electricity generation and road transport to steel- and cement-making, go green, air travel is proving harder to decarbonise. If the aviation business is to ▸▸

reach the industry's goal of net-zero emissions by 2050, tomorrow's fleet will need to be much cleaner than today's. Mission Possible, an industry consortium, reckons this could only be done by doubling historical fuel-efficiency gains, putting aircraft powered by novel technologies in the air by the mid-2030s and rapidly rolling out sustainable fuels (plus carbon-capture technology to offset residual emissions, see chart 3 on next page).

A recent report by SEO Amsterdam Economics and the Royal Netherlands Aerospace Centre, two think-tanks, puts the necessary investment between now and 2050 in Europe alone at some €820bn ($900bn) at 2018 prices, on top of the €1.1trn required for business as usual. Alas, the aviation industry's current state-of-the-art technology and its economics make Mission Possible sound anything but.

When it comes to cutting emissions, aviation has a "wonderful history" compared with other sectors, says Steven Gillard, a director of sustainability at Boeing. He is not wrong. Carbon emissions per kilometre travelled by the average passenger fell by more than 80% over the past 50 years. Each new generation of aircraft generally consumes 15-20% less fuel than the previous one, largely thanks to improved engines. Boeing's boss, Dave Calhoun, told investors last year he wants his next model to be "at least 20%, 25%, maybe 30% better" than aeroplanes it replaces.

The trouble is that the technology that might help Mr Calhoun meet this goal is barely perceptible on the horizon. As the jet age nears its centenary, even the historic pace of improvement is becoming tougher to sustain. "Every leap in tech makes the next one harder," says Andrew Charlton of Aviation Advocacy, a consultancy. And not just for Boeing and its European arch-rival, Airbus. Take engines. CFM, a joint venture between GE and Safran, two engine-makers, has over 1,000 engineers working on Rise, an open rotor-engine that does away with the cowling that covers the fan blades. Rolls-Royce and Pratt & Whitney, two other big engine-makers, are also beavering away on their own ideas. But neither engine is likely to provide the efficiency gains that Boeing is after.


The start of a long journey

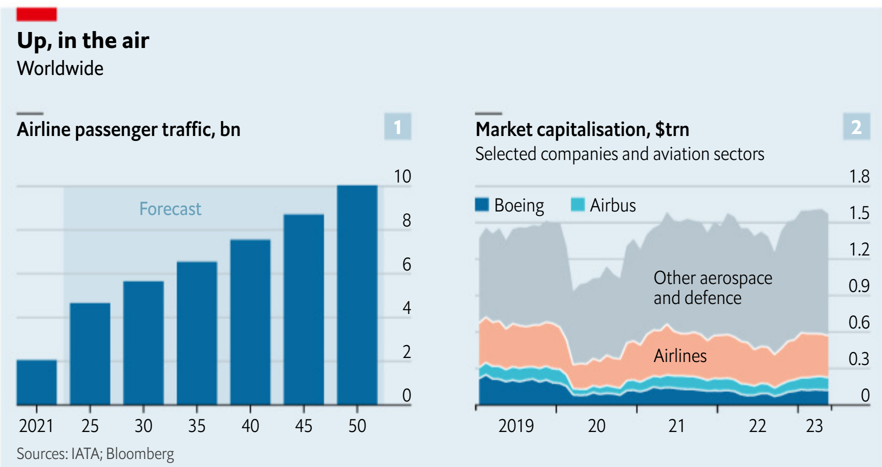
Tweaking the airframes, such as the potential upgrade to Airbus's A320 short-haul jets with composite wings that can carry larger, more efficient engines, may help—but only a bit. Work on more radical airframe redesigns is preliminary at best. Boeing and NASA, America's space agency, are developing a narrower, lighter wing held in place with a strut extending from the bottom of the fuselage as in small propeller planes.

If Mission Possible's efficiency targets look distant, the prospects for new types of planes or fuel seem remote. A few startups, such as Electra.Aero and Heart Aerospace, are working on battery-powered prototypes. Heart already has orders from Air Canada and United Airlines for 30-seaters that could fly 200km on batteries alone, or double that with hybrid power using sustainable fuel. If all goes well, these could be in the air by 2028. Anders Forslund, Heart's boss, reckons that by 2050 all routes up to 1,500km could be served by electric planes. But such trips account for only 20% of today's airliner emissions.

Another option is liquid hydrogen. In 2020 Airbus said it would start work on this technology, with the aim of having a short-haul commercial jet in the air by 2035. This seems unlikely. Hydrogen must be stored below -235°C and takes up more space than kerosene per unit of energy. Using it would thus require a thorough redesign of the aircraft—with heavy cooling systems and bigger fuel tanks that leave less room for passengers—and of airports, which are not equipped to deal with the gas. If hydrogen can be made to work, it would, like battery-powered flight, probably be limited to short-haul flying. Reducing the carbon footprint of long-haul flight requires something else.

The most promising something on offer is sustainable fuel, which though not fully carbon-free emits 80% less greenhouse gas than kerosene. Such fuels are currently produced from old cooking fat, and occasionally blended in small quantities with the conventional stuff. Boeing has promised that all of its planes will be capable of running on 100% sustainable fuels by 2030. Many airlines and energy firms have announced joint schemes to boost production and bring down the cost, which currently stands at roughly twice that of kerosene. Output reached 300m litres in 2022, according to IATA, a three-fold increase on the year before.

That is still a drop in the bucket. For sustainable fuels to get the industry 65% of the way to net zero by 2050 would require 450bn litres a year by then, IATA reckons. Obstacles to achieving such scale remain formidable. A big one is availability of feedstocks. Second-hand cooking oil is not mass-produced in sufficient quantities. Nor are household waste and by-products



of forestry, two other potential sources. Converting food crops to fuel use would get you further. But this is politically thorny at a time when food prices are already rising fast. To avoid controversy, international sustainable-fuel standards currently prohibit using food crops as a feedstock altogether. Synthetic alternatives, made from carbon captured from industrial sources or directly from the air, are so far the preserve of a few pilot projects.

Overcoming the technological hurdles is made harder by the competitive dynamics of the planemaking duopoly. The covid crisis and the grounding of the 737 MAX, Boeing's short-haul workhorse, for 20 months after fatal crashes in 2018 and 2019 have left the American firm with long-term debts of $47bn. It is already busy launching a bigger version of the MAX and certifying the 777X, a variant of its popular long-haul jet. If it does not launch an all-new plane until late this decade, that will be a gap of 25 years from its last big debut, of the 787 in 2005. Its engineers' skills may atrophy.

A new plane programme that might cost up to $30bn and take ten years from launch to commercialisation would not sit well with Boeing's other aim: to resume returning money to shareholders by 2026. Airbus's finances are healthier. But it, too, has little incentive to place a giant bet on an untested new technology with its American nemesis in no position to exert competitive pressure. As it is, the European company's orders are already around 7,000 planes, roughly 50% more than Boeing's.

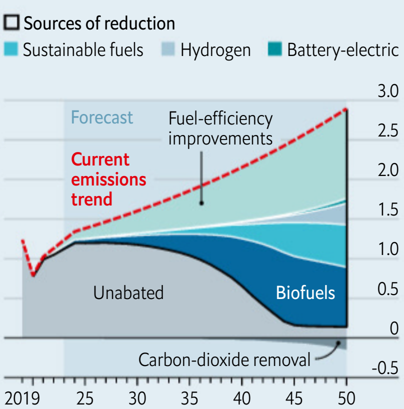
Flying is, then, unlikely to become radically climate-friendlier soon. Scott Deuschle of Credit Suisse, a bank, calls the industry's net-zero target "low probability". The only other option is for governments to get serious about the matter.

Some are. The EU is phasing in a mandate for sustainable fuels, whose share in European airlines' tanks will need to rise from 2% in 2025 to 70% by 2050. In 2026 the bloc will start phasing out free emissions allowances for carriers under its emissions-trading scheme. As part of its covid bail-out of Air France, the French government forbade the carrier from competing with trains on routes of less than two and a half hours. The Dutch authorities ordered a reduction by late 2023 in the number of flights at the state-owned Schiphol airport, the Netherlands' biggest, by 8%, to 460,000 a year, mainly to cut noise pollution though carbon emissions were also a concern. The French ploy may work, though just how much good it will do is debatable. The Dutch one was foiled in April by a court, with the backing of several airlines. The aviation business wants climate virtue—but not yet. ■

The glidepath

Reductions in carbon-dioxide emissions relative to current emissions trend, by source

Commercial aviation, gigatonnes of CO_2 equivalent



Source: Mission Possible Partnership

Wind turbines

Awaiting a second wind

BERLIN

Why an industry that ought to be booming isn't

GIVEN THE political weather, Western makers of wind turbines should be flying high. America's Inflation Reduction Act is stuffed with goodies for all sorts of renewable energy. In late April European leaders pledged to increase the North Sea's offshore-wind capacity to 300 gigawatts by 2050, from about 100 gigawatts today and double a previous commitment. That looks like an awful lot of future business for turbine manufacturers. If only shorter-term forecasts were as clement.

The four biggest Western makers of wind turbines—GE Renewable Energy, Nordex, Siemens Gamesa and Vestas—supply about 90% of the market outside China. Together they made revenues of €42bn ($46bn) in 2022. But whereas wind-farm operators benefited handsomely from high electricity rates after Russia invaded Ukraine in February last year, the turbine-makers sank into the red and their suppliers barely made money (see chart).

Last year the big four racked up combined net losses of nearly €5bn. In recent weeks GE Renewable Energy, Nordex and, on May 15th, Siemens Gamesa, reported more losses in the first three months of the year. Although Vestas, the biggest of the lot, eked out a slim net profit of €16m on sales of €2.8bn, its chief executive, Henrik Andersen, nevertheless conceded that conditions were still "challenging".

The struggle of wind-turbine companies to make money is the result of market forces blowing in opposite directions. On the one hand, prices that turbines can fetch have been coming down. In the past few years Vestas and its competitors rushed to outdo each other by building ever-bigger turbines that offer ever-cheaper capacity to wind-farm developers, a group that includes big utilities and private infrastructure investors. On the other hand, those buyers' appetite for new kit has been cooled somewhat by the difficulty of securing the permits necessary to install it. The average selling price per megawatt, the industry's preferred measure, fell from nearly €1m in the mid-2010s to about €700,000 in 2020.

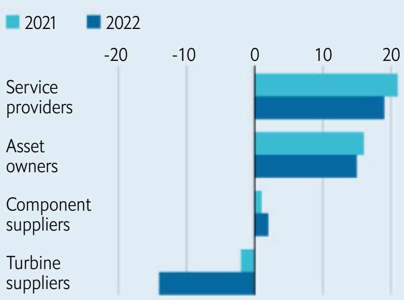
The time between signing a contract with wind-farm developers to actually erecting the turbines and getting paid is as much as three years on average for onshore projects and five for offshore ones, estimates Endri Lico of Wood Mackenzie, a consultancy. Because terms are mostly locked in during that time, that exposes turbine-makers to any market vagaries. Lately these have combined into a "perfect storm", in the words of Mr Lico: supply-chain disruptions, lack of raw materials and components, inflation, higher interest rates and geopolitical tensions.

The race to develop bigger turbines may come to haunt the industry for a longer period, says Thomas Cobet of AlixPartners, another consultancy. The largest machines are not yet a mature technology. They could also prove costly for turbine-makers to maintain. This, in turn, would hurt the margins of the manufacturers' biggest moneymaker: service contracts in which operators pay them a predetermined fee for everything from spare parts to full operations programmes.

The industry would also love to avoid the fate that befell Europe's solar-panel industry, which lost an early lead to cheaper state-subsidised Chinese rivals. China's turbine-makers are growing quickly—and profitably. The world's biggest such firm is now Goldwind, which installed 12.5 gigawatts of capacity in 2022, for the first time edging ahead of Vestas, while generating ▸▸

Gales of creative destruction

Wind-power industry, average operating-profit margin by supply-chain segment, %



Source: Wood Mackenzie

an annual net profit of around $340m. Although the Chinese firms mostly cater to their home market, in which Western companies are not allowed to compete, they are also eyeing foreign customers, notably in countries along China's Belt and Road Initiative of infrastructure projects.

Amid rising Sino-Western tensions, and a broader protectionist mood gripping Washington and European capitals alike, Chinese manufacturers are increasingly unwelcome in America and Europe. Europeans in particular, having been burned by a dependence on cheap Russian gas as war broke out on their doorstep, do not want to rely on cheap Chinese turbines, says Harriet Fox of Ember, one more consultancy. But if Vestas and other Western turbine companies are to do their part in the continent's decarbonisation, they must first return to profitability.

In today's adverse market conditions, this may necessitate government action. In April the EU agreed to make permissions for new wind farms and related infrastructure easier to obtain, for instance by allowing the creation of "renewable acceleration areas", where projects may be approved in one year or less. That is a start. Still, argues Phuc-Vinh Nguyen of the Jacques Delors Institute, a think-tank in Paris, the EU needs to do more to reduce the uncertainty for turbine-makers and wind-farm developers—something that the Inflation Reduction Act does much better than Europe's current rules do. This does not necessarily mean more public money. Europe is actually held back by a lack of concrete timelines for investments and clear regulations. Without them, the forecast for Western turbine-makers will remain choppy. ■

Bartleby The bottleneck bane



An unlikely topic for a thriller is a timeless one for managers

"THE GOAL" is a notable business book for two reasons. The first is its unusual genre. First published in 1984, it is a management tome dressed up in the clothes of a thriller. The book, written by Eliyahu Goldratt and Jeff Cox, tells the story of Alex Rogo, a plant manager who has to overhaul his factory within three months or face closure.

To the objection that this is not thrilling at all, consider that it could have been a lot worse ("Alan Key must format a slide deck by midnight or he won't get enough sleep to function properly the next day"). And Rogo's efforts to reduce excess inventory and win over Bill Peach, his hard-driving boss, are weirdly entertaining. In any case readers lapped it up. "The Goal" sold millions. It has been reprinted several times. It even got turned into a graphic novel.

Its second contribution was to popularise thinking about bottlenecks. The novel was written to get across Goldratt's "theory of constraints", a method for identifying those resources whose capacity does not match the demands placed on them. (This definition comes from one of the book's protagonists—Jonah, a brilliant, globe-trotting business adviser whose resemblance to a real person seems unlikely to be coincidental.)

Bottlenecks are often thought of as physical constraints. In Rogo's factory, for example, the bottlenecks are two particular machines whose through-put must be increased in order to ship orders faster. In recent years the pandemic has increased awareness of such bottlenecks in the wider supply chain, whether because of the impact of semiconductor shortages or the effect of backlogs at congested ports.

Policies can be bottlenecks, too. The pandemic also forced vaccine manufacturers to ditch normal patterns of working. In "Vaxxers", a book about their work to develop the Oxford-AstraZeneca covid-19 jab, Sarah Gilbert and Catherine Green describe how they did more "at risk" work, doing things in parallel that would usually have been done sequentially. That would have meant wasted work if they had hit a problem, but also that scientists got stuff done much faster than usual. Bill Peach would have approved.

People are also bottlenecks. Within organisations, managers themselves are frequently the points at which things get bunged up. That might be because executives simply have too much to do. Estimates vary on how many direct reports a manager should ideally have. But if they don't all fit in a lift, you almost certainly have too many.

It might be their own fault—if they are micromanagers, say, offering up helpful opinions on everything from font sizes to office furniture. It might be because no one is comfortable making a decision for fear of being hauled over the coals later by their own boss. It might be because there is jockeying and confusion over who has the right to make a call (an "upward status disagreement", if you like jargon; a "pissing contest", if you don't).



Bottlenecks can stem from good behaviour as well as bad. Collaboration is normally celebrated, but it can easily result in more delays if people's time is being soaked up on non-essential tasks. Similarly, the person who responds to every message quickly and clears their inbox every night looks like the very opposite of a bottleneck, but that depends on two things: on what work they are not doing while they manically check their email, and on whether those messages are about trivial things. If people are responding at great speed on matters of zero importance—especially if they are high up the ladder and colleagues are therefore likely to respond to them in turn—they are probably creating trouble of some sort.

Whatever the causes of congestion, the costs can be material. Daniel Ek, the boss of Spotify, attributed a recent restructuring at the music-streaming company to the need to make faster decisions. Consultants at McKinsey have estimated that about 530,000 days of managers' time each year may be wasted on broken decision-making processes at a typical Fortune 500 company.

"The Goal" is not the greatest thriller ever. No one dies. The only real violence done is to the English language ("It's not until I'm busy with my delicious veal parmesan that my thoughts start to crystallise"). But it is a lot more readable than most business books, and it makes you think about a subject that is relevant not only to supply-chain managers and operations managers but to bosses everywhere. Bottlenecks abound. They just need to be found.



Indian conglomerates

Not over Reliance

MUMBAI

Mukesh Ambani and his business empire are once again the talk of India Inc

IT HAD ALL the hallmarks of a coming-out party—or, more accurately, a coming-out-again one. After being uncharacteristically absent from public view for a few years, Mukesh Ambani re-emerged at the end of March for the opening of the Nita Mukesh Ambani Cultural Centre in Mumbai's new business district. It houses three theatres, a conference hall for trade shows, as well as a small museum. Plans are afoot to build an adjoining apartment complex and shopping mall. The precise cost of the project is veiled in secrecy, though the figure of $1bn has been rumoured. A single lift, said to be the world's largest, with a capacity of 100 people, is thought to have set the tycoon back $45m.

The sprawling and opaque endeavour is an apt metaphor for Reliance Group, the business empire that has made Mr Ambani Asia's richest man. The conglomerate reported record profits in the fiscal year to March, stealing the limelight from a rival tycoon, Gautam Adani, whose businesses are on the defensive after an attack in January by a short-seller. Last year its listed flagship, Reliance Industries, accounted for 21% of the collective revenue of the 30 Indian blue-chip firms in Mumbai's Sensex index, and 13% of their net profits. With the beleaguered Mr Adani reining in investments, Mr Ambani remains a rare Indian industrialist who is keen to build. Reliance Industries' capital spending grew from $10bn in fiscal 2021 to $14bn a year later. Last year it spent $18bn, equivalent to 45% of the Sensex total.

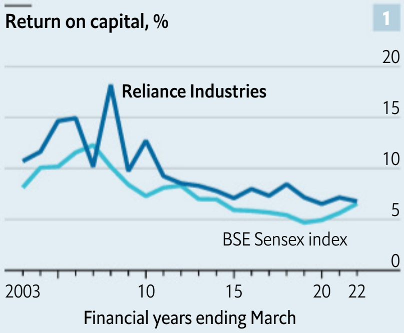
In the sectors where Reliance operates, it is dominant. Its Jio telephony unit went from nothing to 439m mobile customers, or 37% of India's total, in seven years. It gained 1m users in February even as Vodafone, the erstwhile market leader, lost double that number. Reliance's retailing arm has 18,000 stores, up from 12,000 two years ago, a digital marketplace and a logistics network. It sells everything from gadgets and groceries to garments (many coming straight from numerous fashion brands that Reliance has been acquiring). Its renewable-energy arm has grand ambitions in solar power, green hydrogen and other climate-friendly businesses. On May 2nd the group spun out Jio Financial Services, which could fast become a force in payments and consumer lending thanks to troves of data on Jio's mobile customers.

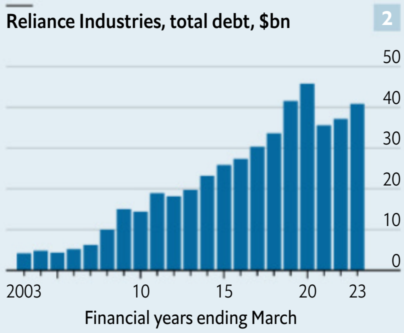
Then there is Reliance's core business: petrochemicals. It is less sexy than the much-trumpeted new-economy ventures, but more lucrative. Last year the group's refining operations produced 56% of its total revenues and 59% of earnings before interest and taxes. Reliance is believed to be the single biggest beneficiary from India's abrupt transformation into a huge importer of sanction-hit Russian oil and a leading exporter of refined products. Mr Ambani's business benefits from both ends of this equation, buying cut-price Russian crude and selling the refined stuff into global markets, where prices remain elevated. According to Jefferies, an investment bank, this adds up to $5 of gross margin to every barrel of Reliance's refined oil. The company says that "As part of overall crude sourcing strategy, Reliance is always in the market to source arbitrage barrels."

Yet Reliance's ambitions have a flipside. It makes relatively little money from its operations. Though its return on capital is higher than for the Sensex as a whole, it has not exceeded 10% since 2007 (see chart 1). Last year it was 5%. Year-on-year revenue growth slowed in each of the past three quarters. Debts are up (see chart 2), having dropped in 2021 after capital injections from foreign tech giants such as Alphabet and Meta, and sovereign-wealth funds, which all saw teaming up with a local titan as a way to partake in India's rise. Net debt trebled in the last financial year, relative to the one before.

In the 12 months to March Reliance Industries' market value fell by 18% in dollar terms, or $43bn. Among big Indian firms, only Mr Adani's battered businesses and two IT giants caught up in the global tech crunch, Infosys and TCS, did worse. Reliance has since clawed back some of that. But it will take more than a snazzy cultural centre to impress investors. ■

The Ambani premium





Source: Bloomberg

Schumpeter | The disunited states

Populism and polarisation are fraying America's business-friendly single market



Living in California, as Schumpeter does, you would think licence plates called it the Red Tape State, not the golden one. Last August it led the world in announcing a ban on new gasoline-fuelled cars by 2035. In December its petrol prices soared higher than anywhere else in America, leading to an onerous cap on refiners' profit margins. Early this year you could barely find an egg to fry, partly because of an animal-welfare measure from 2018 that keeps eggs off its shop shelves if they are laid in cages.

California has the privilege of being a colossal market irresistible to manufacturers, so some of its rules become standards well beyond its borders. But it is not unique in wanting to go its own way. Across America, a mishmash of regulations from state to state differ on everything from how to manufacture lifts and how to produce liquor to how to run a bank. In theory that is all well and good. Regulatory experimentation can be healthy. In practice it creates a minefield. Every American state border is festooned with so much red tape that it costs businesses an arm and a leg.

For a columnist from Britain, this is strange. Having grown so accustomed to hearing about the shortcomings of the European Union's single market, it is a shock to realise that America's interstate equivalent is no paradise, despite being bigger, constitutionally protected and far more rooted in history than the EU's.

And if anything, it is in danger of fraying further. A combination of local one-party supermajorities, populism and the culture wars are making states—led by chest-thumping attorneys-general—only too eager to get into the ring with business. Companies have long feared the Democratic sucker punch. Now Republicans are threatening business, too, their free-market instincts overtaken by their desire to assert state interests over federal regulatory authority. This political polarisation raises two big questions. Does it affect the ability of American firms to do business at home? And what are they doing about it?

Companies face several challenges. The first is legal, exemplified by moves to ban abortions. Take Walgreens, America's second-biggest pharmacy chain, which this year found itself in a Catch-22. In February it received a letter from 20 Republican attorneys-general warning it that it might be breaking federal and state laws if it mailed mifepristone, an abortion pill, to their states. It then made the seemingly unobjectionable point that it would only supply the medication to states where it was legally permissible. In response, California's Democratic governor, Gavin Newsom, scuttled a state contract with Walgreens and threatened a boycott. Walgreens' rivals, such as CVS, wisely kept quiet. Yet they, too, may find themselves in a similar legal quagmire if the issue becomes politicised even further.

The second headache is cultural. Among blue states, California has passed laws (later struck down in court) encouraging racial diversity on company boards. Among Republican-leaning states, Florida, via the "Stop WOKE Act", has sought to outlaw discrimination by race, even in pursuit of diversity, equity and inclusion. Such inconsistencies make it hard for firms to apply a one-size-fits-all policy. Different state governments have different views as to what kinds of diversity ought to be promoted. This month 19 Republican attorneys-general attacked JPMorgan Chase, America's biggest bank, for a "double standard" on inclusiveness. They noted that the lender had affirmed its "unwavering commitment" to LGBT+ Americans. The same commitment had not been extended to religious or conservative groups, they said.

The third pitfall has to do with greenery. According to Ropes & Gray, a law firm that tracks environmental, social and governance (ESG) legislation, states are introducing contradictory regulations about oil, gas and coal investments. In 2021 Maine, a blue state, got the ball rolling with legislation prohibiting its public pension fund from investing in big fossil-fuel producers, and set out a timetable for divestment. The same year Texas banned state funds from having relationships with financial firms that boycott energy companies. More than a dozen blue and red states have followed their respective leads. These initiatives are linked to Democratic support for ESG and Republican hostility to anything that smacks of "non-pecuniary" investment considerations. Compounding the problem, says Joshua Lichtenstein of Ropes & Gray, is that doing business in the EU may require sustainability reporting, which is anathema in parts of America.

Firms may be accused of sleepwalking into their predicament. During Donald Trump's presidency they stuck their necks out on hot-button issues, for instance opposing North Carolina's "bathroom bill" that would bar transgender women from ladies' toilets. They embraced ESG-infused stakeholder capitalism, hoping to attract consumers and workers. Then came the "wokelash". Florida's war on Disney, after the firm opposed a bill barring talk of sexual and gender identity in some primary-school year groups, marked "a fork in the road", says Maggie Mick of MultiState, a consultancy.

Since then, companies have had a rethink. One way they have done so is by making political donations more bipartisan. Another is to go quiet on their climate commitments, a tactic known as "green-hushing". Equally quietly, some asset managers are lobbying state governments to reverse their ESG prohibitions. As yet, no one is throwing in the towel on the United States.

From Brexit to Texit

Craig Parsons of the University of Oregon notes that, for all its frailties, America's single market has some resounding strengths, such as use of a common language and a shared culture. That heritage is delicate, though, especially in the context of the culture wars and political schisms. If the trend of state supermajorities persists after the 2024 elections, things could get worse. America should be careful. Its coast-to-coast marketplace is far too important to take for granted. Take that on trust from a Brit. ■



Banking shrinks

Leviathan swells

NEW YORK

The global financial system is moving ever closer towards state control

There exists a centuries-old and fathoms-deep relationship between finance and the state. The great banking houses, such as the Medicis of Florence, were lenders of last resort to rulers at risk of being overthrown. Financiers had to avoid backing losers, who would be unable to repay debts. Now it is banks that threaten to bring down the state; a switch that has led to more and more oversight from official organs. Things shifted sharply a century ago, with intervention in the Depression. The global financial crisis of 2007-09 reinforced the trend. Recent turmoil has pushed the banking system further along the path to state control.

On May 11th the Federal Deposit Insurance Corporation, an American regulator, revealed that the country's big banks face a bill of $16bn for losses associated with the failures of Silicon Valley Bank (SVB) and Signature Bank. They will probably have to kick in even more to cover the fall of First Republic, another lender. In America, Britain and Europe, officials are debating if they should offer more generous protection for bank deposits. Such moves are just the latest evidence of the diminution of banks' power and the increase in that of the state. Over the past few months, in areas from deposit insurance to emergency lending to regulation of asset quality, Leviathan has grown ever more dominant.

Bankers and regulators are well aware that changes introduced in a time of turmoil have a habit of sticking around. Andrew Haldane, formerly of the Bank of England, has compared the safety-net provided to banks to "over-stretched elastic". Once inflated, it never quite shrinks back to size. Moreover, potential future expansions in the state's remit—possibly including much tighter rules on collateral or an unintended shift to a so-called narrow-banking system—can now be glimpsed. How much further will the state expand?

To understand the dynamic at play, start with deposit insurance—which President Franklin Roosevelt is often credited with inventing. In fact, he resisted the measure's introduction in 1934, fearing it would "lead to laxity in bank management", since an insured depositor need not worry about safety. Although other countries, fearing the same, were slow to introduce such insurance, it nevertheless spread, typically introduced at times of crisis. This spring American regulators went further than ever: retrospectively protecting depositors in SVB, Signature Bank and, in effect, First Republic. The president, treasury secretary and chairman of the Federal Reserve have all more or less said that all deposits in banks are safe.

Emergency lending is the next area where the state's role is growing. Banks need a lender of last resort because they are inherently unstable. Deposits are redeemable on demand; loans are long-term. Thus no institution will have money to hand when depositors clamour for it en masse. Walter Bagehot, a former editor of *The Economist*, is credited with advising that, to avoid a crisis, central bankers should lend freely to solvent institutions, secured by good collateral and at a penalty rate of interest. The Fed's recently introduced "bank ▸▸

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term funding programme" discards this dictum. It values long-term securities at par even when the market has heavily discounted them, and imposes hardly any penalty above the market rate of interest.

The bigger the backstop, the more reason the government has to dictate what risks banks may take. Therein lies the third source of creeping state control: regulation of asset quality. Banks everywhere are subject to rules that restrict the riskiness of their assets and govern how much capital they must hold. The real risk comes when policy preferences interfere with lending rules. In America this already happens in the mortgage market, which is dominated by two government-backed enterprises: Fannie Mae and Freddie Mac. Together the two institutions now underwrite credit risk for more than half of mortgages. Their guarantees enable the 30-year fixed-rate, prepayable mortgages Americans have come to expect. They also help explain why America's financial system bears more interest-rate risk than Europe's, where floating-rate mortgages are common.

On the house

Since Fannie and Freddie take on credit risk themselves, they charge mortgage originators "points" (as in percentage points), which vary with a borrower's credit score and the loan-to-value ratio on a property. The system is arbitrary for borrowers, with those on the wrong side of dividing lines hammered. And sometimes the arbitrariness is fiddled with for reasons other than perceived risk. On May 1st new rules were put in place by the Federal Housing Finance Agency, raising the cost for high-score borrowers and cutting it for their low-score peers. The ambition was to make it easier for poor people to buy a home. Quite apart from the fact that easier credit does little, in aggregate, to make housing affordable, the government has in effect mandated that these institutions should not be properly compensated for the risk they take on.

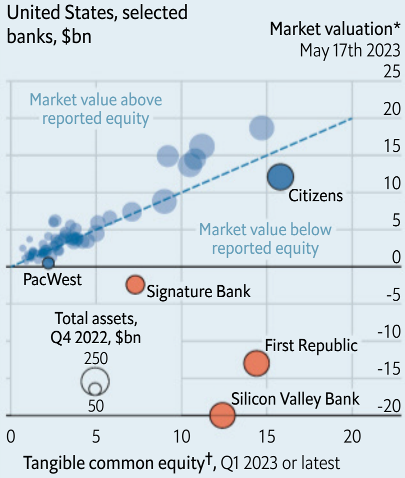
More of the banking system is coming to look like housing finance. After the global financial crisis, regulators hugely increased the stringency of rules governing bank balance-sheets. Different assets attract different risk-weights, meaning that what a bank chooses to invest in affects its overall minimum-capital requirements. Like any attempt to categorise complex things, these risk-weights will often be wrong. The loanbook of First Republic, which collapsed on May 1st, carried mortgages for the rich that had little credit risk, yet the rules assigned them a high risk-weight. Probably for this reason, regulators promised to share credit losses with JPMorgan Chase as part of its purchase of the loans, resulting in a lower risk-weight. It is not that anyone expects large losses. The government just had to circumvent its own misfiring rule.

Where next for state intervention? In addition to expanding deposit insurance, the likely response of regulators to the recent turmoil will be to tighten rules on interest-rate risk. Today's regulations allow banks to count the par value of government bonds of any duration as top-quality liquidity (ie, funds that are accessible in a crisis). As so many banks have learned in recent months, these bonds fall sharply in value when rates rise. The safest assets are both government-issued and short-term. Yet the more super-safe short-term government securities banks are instructed to hold, the more the industry would move away from its basic principle: that the point of banking is to transform short-term deposits into long-term assets.

To some, this would be a good thing. Narrow banking, in which institutions are required to hold sufficient liquid assets to back all their deposits, was first proposed in 1933 as the "Chicago Plan", after the devastation of the Depression. Already some parts of the system look narrowish. In 2013 money-market funds were given access to the Federal Reserve's reverse-repo facility, in which they receive securities overnight in exchange for cash—a facility that was expanded during the covid-19 pandemic. In effect, Americans can park cash in money-market funds, which in turn park it directly at the Fed, circumventing the banking system altogether. Money-market funds have been on the receiving end of some $435bn in inflows since SVB failed, a cash-flow that is helping destabilise banks. Another way in which the system could become more narrow is if the Fed or other important central banks launch central bank digital currencies, which operate as alternatives to bank accounts.

Got capital?

United States, selected banks, $bn



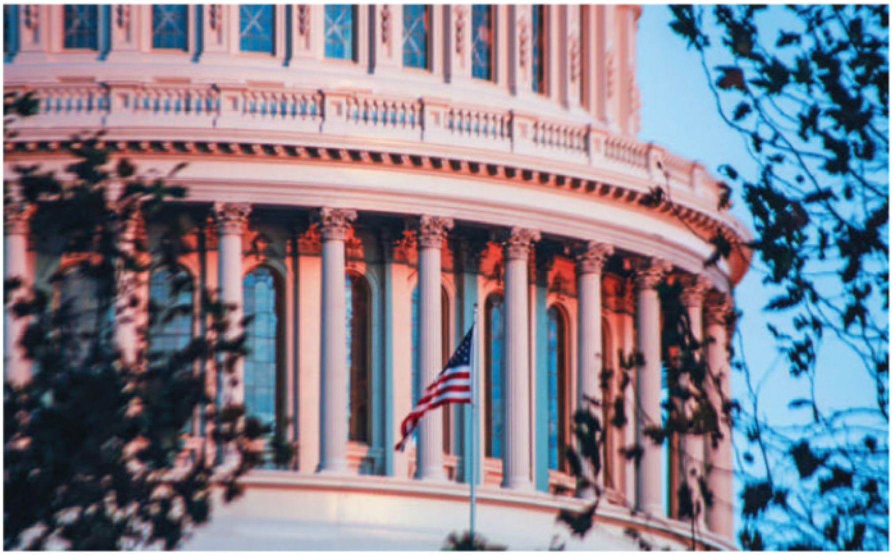
*Market capitalisation of a listed firm or the net value of a failed bank †Common equity less disclosed intangibles
Sources: Bloomberg; company reports; FDIC; Nasdaq

Such a world would bring its own problems. Deposits are not useful sitting idle. The benefits of linking savers, who prefer safety and liquidity, with borrowers, who like flexibility and security, are big. Joseph Schumpeter, an economist, wrote in the 1930s that it was "one of the most characteristic features of the financial side of the capitalist evolution to 'mobilise' all, even the longest maturities", so that they are financed by short-term borrowing. "This is not mere technique. This is part of the core of the capitalist process." Banks liberate investment—an engine of Schumpeter's creative destruction—from the "voluntary abstinence routine of the savers".

An alternative path might be to conclude that in a world of superfast bank runs, like the scramble that brought down SVB, emergency support from central banks needs to become more common. Sir Paul Tucker, formerly of the Bank of England, who helped write rules introduced after the financial crisis, recently told the *Financial Times* that banks should stand ready to offer the central bank enough collateral to fund emergency loans covering all their deposits, such that they could survive a total run. This would bring into sharp relief another method by which the state controls banks: the list of assets it deems to be eligible as collateral for emergency loans. Banks would be able to use deposit financing only to hold assets that carried a government stamp of approval.

Whichever path is chosen, the world is moving towards a bigger role for the government and a smaller one for private actors—a fact that should alarm anyone who values the role of the private sector in judging risk. In China and Vietnam state sanctioning of credit creation is explicit. The largest banks are majority-owned by the government, and state lenders are bound to prop up sclerotic state enterprises or turbocharge growth when governments deem fit. It is getting harder to spot the differences between the Chinese system of explicit direction of lending and the "social contract" of the Western system, in which there is massive state underwriting of risks and a mass of regulation foisted on banks in return, so that they do not abuse the insurance they have been granted.

What is more, the seeds of many banking crises have been laid by misguided government intervention in banking, particularly by those moves that skew incentives or the pricing of risk, warns Gary Cohn, formerly second-in-command at Goldman Sachs, a bank. It might be easier to sleep at night knowing that, at present, the government has all but promised to protect all deposits, has lent generously to banks clinging on and has infused the system with funds through its wind-up operations. But this is precisely the kind of action that will cause sleepless nights in future. ■



Budgetary dysfunction

Magical realism

WASHINGTON, DC

America plans for the day after a debt-ceiling disaster

AMERICA IS ONCE again in the throes of a debt-ceiling crisis. If Congress and the White House do not come to a deal, the government may run out of cash and be on the brink of a sovereign default in less than a fortnight. Most investors expect a last-minute compromise, as during past crises. So does President Joe Biden. Yet positions on each side of the aisle look entrenched: Republicans want big spending cuts; Democrats are resisting. Thus the White House must also consider its break-glass options. If there is no agreement, what would Mr Biden do?

There are two broad kinds of workarounds that the Biden administration could use to manage the fallout from a debt-ceiling disaster. One is magical, the other messy and neither appealing.

Both would render the debt ceiling moot—at least in theory. An idea that has captured the imagination of many wonks, owing to its novelty, is a trillion-dollar coin. The Treasury can mint commemorative coins of any denomination. The suggestion, first advanced on a financial blog in 2010, is that it should mint a very valuable coin, deposit it in the government's account at the Federal Reserve and draw on it to pay for everything from military salaries to scientific research. The government would no longer need borrowing approval from Congress. Indeed, it would no longer need to borrow from public markets.

Another idea is that the White House could deploy the 14th amendment of the constitution, which states that the validity of American government debt "shall not be questioned". The Biden administration could issue an executive order citing the 14th and directing the Treasury to resume issuing bonds. So long as it were upheld in court, the White House would, in effect, have branded the debt ceiling as unconstitutional, giving itself a free hand.

A final magical solution would involve financial engineering. The debt ceiling specifically targets the face value of debt. At current yields, the Treasury can borrow money for two years at an annual rate of about 4%. But what if it offered bonds with coupons of, say, 100%? In this case it could issue a bond with a face value roughly 1/25th that of a bond with a 4% yield but raise the same amount from investors (who would pay a giant premium to the face value, bringing the bond's true yield in line with the market rate). As the Treasury rolled over existing debts into high-coupon, low face-value bonds, it would acquire plenty of room under the debt ceiling, allowing it to resume borrowing.

These magical workarounds are all clever. Yet they also share the same basic defects. They are, to varying degrees, ruses and loopholes that do not seem befitting of American government bonds, the world's most important financial asset. It would be unsettling to think that Treasuries—a benchmark for interest rates and a haven for investors the world over—could be underpinned by a commemorative coin. Janet Yellen, the treasury secretary, has dismissed the option as a "gimmick".

Although gimmickry would be better than the American government reneging on its debts, there is another objection to such magical solutions: each would be subject to legal challenge, sowing uncertainty in markets. Some experts think the administration could win a 14th-amendment case. But that is far from certain in a Supreme Court with a conservative majority. Legal proceedings could extend beyond the moment, perhaps early in June, when the government runs out of money. Stuck in litigation, the magical solutions would struggle to prevent market freak-outs.

This would leave America with a messier, more painful workaround: the prioritisation of payments. The Treasury would set aside cash from its tax revenues to make interest payments. With whatever money is left over, it could meet some of its other obligations. Analysts at the Brookings Institution, a think-tank, estimate that the result would be a cut of one-quarter in the government's non-interest expenditures, which would represent a remarkably harsh dose of austerity. If the government were to aim for one additional layer of prioritisation—making social-security payments to pensioners, plus covering interest on bonds—it would have to cut other expenditures by about one-third.

Officials at the Fed and the Treasury have already begun to plan for prioritisation, having drafted a blueprint during the debt-ceiling crisis in 2011. Even so, Treasury officials privately admit they are not confident prioritisation would function as intended. For the scheme to work, the government would have to continue to conduct regular bond sales, using the proceeds to pay off the principal from maturing bonds. This would require dealers to show up as frequently as four times a week to Treasury auctions, sometimes with billions of dollars on the line, and to play their part in the prioritisation tap-dance. What happens if they balk and deem that the environment is simply too uncertain?

The politics would also be treacherous. Putting bondholders ahead of civil servants, pensioners and soldiers "might not prove to be sustainable", as Bill Dudley, then president of the New York Fed, drily noted during a planning discussion in 2011.

Despite all the evident flaws, prioritisation will almost certainly be the initial fallback if Congress does not lift the debt ceiling in time. "A few days of prioritisation may be what is needed to get both sides to blink," says Daleep Singh, a former economic adviser to the Biden administration. "It would have big costs and that would hopefully crystallise minds in DC, provoking a deal." Whatever the outcome, one conclusion is clear: this is no way to manage the world's biggest economy. ■



Post-covid economics

Confidence trap

HONG KONG

Is China's recovery about to stall?

CHINA'S YOUTH represent just a sliver of the country's working-age population and an even narrower share of its workforce. Many of those aged 16 to 24, after all, are still in school or university and therefore not seeking employment. In recent years, their job prospects have nonetheless compelled attention and raised alarm. Last month, overall unemployment in China fell from 5.3% to 5.2%, according to figures released on May 16th. This improvement was overshadowed by a rise in youth unemployment to 20.4%, the highest recorded since the data began 2018.

The enormous attention paid to issues like youth unemployment is a symptom of China's emerging "confidence trap", argue Xiangrong Yu of Citigroup, a bank, and his colleagues. Even as the country's economic recovery largely surpassed expectations in the first three months of the year, investors seemed to focus on its "weak links". These included lacklustre imports, soft inflation, the failure of manufacturing to match the strength in services—and jobless youngsters. Foreign investors have soured on China as geopolitical tensions have risen: on May 17th the yuan slid past seven to the dollar. But "pessimism is also significantly prevalent and persistent on the domestic side", the Citigroup economists note.

It is evident in China's stockmarkets, which have given up many of their gains from the initial reopening rally. And pleasant surprises in the economic data have barely registered in eeyorish fixed-income markets: government bond yields are only a bit higher than they were in the depths of the covid-19 pandemic. Although consumer confidence looks healthier than last year, it remains far below levels in 2019.

China's uneven recovery has so far failed to lift the mood. The danger now is that the mood will sink China's recovery. In April, for example, credit grew surprisingly slowly. Retail sales, though strong compared with April last year, when Shanghai and other big cities entered lockdowns, were weak compared with professional forecasts (see chart). Industrial production also fell short of analysts' expectations.

Investment by state-owned enterprises was reasonably strong, but spending by private enterprises was only 0.4% higher in April than a year earlier, according to Oxford Economics, a research firm. Part of the explanation for this disappointing growth can be found in China's property market, where a nascent recovery now appears to be in doubt. At the urging of the government, developers have prioritised completing unfinished building projects, rather than investing in new ones. Housing starts fell by more than 20%, even as completed floorspace grew by almost 19%.

The weakness in the property market has prompted some economists to reduce their growth forecasts for the year. Ting Lu of Nomura, a bank, cut his figure from 5.9% to 5.5%, for example. "The recovery has stalled," he explained, "due partly to Beijing's inability to boost confidence among consumers and business investors. As disappointment kicks in, we see a rising risk of a downward spiral."

China could seek to revive the recovery and confidence by easing monetary policy more forcefully. Inflation fell to only 0.1% in April, leaving plenty of room for stimulus. But since China's official growth target for this year is only 5%, the government may not rush to the rescue. Foreign investors and Chinese consumers do not have great faith in China's recovery this year. The government's unambitious growth target, set in March, suggests it does not have great confidence either. ■



Interest rates

The end of LIBOR

Farewell to a scandal-ridden relic

LIKE SLIDE RULES and martini lunches, the London interbank offered rate (LIBOR) was once a fine idea. In 1969 Iran's central bank was looking for an $80m loan—at the time a hefty ticket for a high-risk country without the foreign-exchange reserves to cover it. So Minos Zombanakis, their banker, clubbed together a syndicate of banks which would each lend some of the money. But what interest rate to charge? Inflation was rising and rates were volatile; no bank wanted to lend at a fixed rate in case that left them out of pocket.

Zombanakis's solution was LIBOR. Every interest period, each bank would report its cost of borrowing. The average of these, plus a spread for profit, would be the loan's interest rate. If the lenders' costs rose from period to period, so would their income. The idea took off—and with it, the market for syndicated loans. By 1982 this market was worth $46bn and mostly pegged to LIBOR. Derivatives, home loans and credit cards followed. By 2012 LIBOR set the rates for contracts governing some $550trn, more than seven times global GDP. Yet ever since then LIBOR has been on the decline. Next month its final few fixings, for dollar lending, will be switched off for good.

Its downfall was triggered by scandal: in 2012, it emerged that banks, brokers and traders had spent years manipulating the benchmark for profits. This prompted record-breaking fines, arrests and a loss of faith in the world's most important number. But a deeper reason for LIBOR's demise is that today's financial system makes the benchmark look as dated as the cigar smoke and mahogany panels that attended its birth. During the global financial crisis of 2007-09 the interbank-lending market that LIBOR was meant to measure all but evaporated. It never returned to anything like its former depth as banks looked to more reliable funding sources. And so in 2017 regulators finally called time, warning firms to prepare for LIBOR's cessation.

The benchmarks replacing LIBOR are more suited to 21st-century finance. With one for each of LIBOR's five currencies, they are something of an alphabet soup. There is the secured overnight financing rate (SOFR) for the dollar, the sterling overnight index average (SONIA) for the pound, the Tokyo overnight average rate (TONAR) for the yen, the Swiss average rate overnight (SARON) for the Swiss franc and the euro short-term rate (€STR) for the euro. ▸▸

What they all have in common is that they measure borrowing costs on large numbers of actual transactions, rather than trusting conflicted bankers to reply honestly to a subjective survey. Two of them—SOFR and SARON—report rates in the repo market (for secured loans collateralised by government bonds) rather than for bank deposits. This reflects the financial system's shift from bank lending to disintermediated, market-based finance.

In theory, then, LIBOR's alternatives make more sense. In practice, adopting them has been a long and rather tortuous slog. Dixit Joshi, formerly treasurer at Deutsche Bank, a German institution, compared its complexity unfavourably to that of Britain's exit from the European Union. Contracts on hundreds of trillions of dollars, plus the computing infrastructure used to trade and monitor them, had to be renegotiated for a situation many had never envisaged. For dollar-LIBOR, this meant extending the original cut-off date from the end of 2021 (when fixings for other currencies ceased) to this coming June.

Even now, some $74trn of contracts use dollar-LIBOR and expire after the deadline. There will be no more extensions. America's Congress has passed a bill allowing the Federal Reserve to intervene in contracts and switch them from LIBOR to SOFR if they lack alternatives. (The contracts' counterparties can prevent this if they agree.) Zombanakis himself, now dead, would have been unlikely to object. "We took it for granted that gentlemen wouldn't try to manipulate things like that," he told Bloomberg journalists in 2016, referring to the LIBOR scandal. "But as the market was getting bigger, you couldn't trust it...There's just too much money involved." ■

Buttonwood Machine earning

How to invest in artificial intelligence: private startups or public markets?

It has been a torrid 18 months for investors who bet on tech. SoftBank, a Japanese investment firm that epitomised the 2010s boom in venture capital for companies with rapid-growth ambitions, is still smarting from the shift to a world of higher interest rates and lower corporate valuations. But there is one area in which the firm, run by Son Masayoshi, its charismatic founder, wants to peek above the parapet: investments in artificial intelligence (AI).

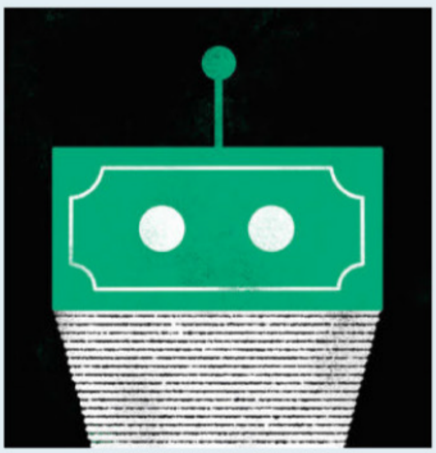
The advances of generative-AI platforms, such as ChatGPT, have left just about every investor discussing what to make of the incipient industry, and which firms it might upturn. Mr Son sees parallels with the early period of the internet. Generative AI could provide a new pipeline of initial public offerings—and the foundation for the next generation of mega-cap tech firms.

Investors face two questions. The first is which frontier technologies will make market leaders a fortune. That is difficult enough. The second, establishing whether the value will accrue to upstarts backed by venture capital or existing technology giants, is at least as tricky. Nobody knows if it is better to have the best chatbot or plenty of customers—having a head start in a whizzy new tech is not the same as being able to make money from it. Indeed, lots of the value of revolutionary innovation is often captured by existing giants.

Alphabet, Amazon and Meta are three of the seven largest listed companies in America, worth a combined $3.4trn. They were founded between 1994 and 2004, emerging at a time when internet technology was new and people were spending an increasing amount of time online. Alibaba, a Chinese e-commerce giant, is another similar example (SoftBank's early $20m stake in the company helped cement Mr Son's reputation as an investor). Spotting tech trends, and developing the best platforms, generated a gargantuan amount of value for early and even not-so-early investors. Legacy firms struggled to jump on the bandwagon.

Will the story be the same this time around? The insights of Clayton Christensen, a management guru who pioneered a theory of innovation just as the internet giants were bursting onto the scene, can provide a useful guide. Christensen noted that smaller companies often gain traction in low-end markets and entirely new ones, which the largest incumbents eschew. The incumbents focus on deploying new technology for their existing customers and lines of business. They are not incompetent or ignorant of technological progress. Instead, they follow the seemingly correct path from a profit-maximising perspective—until it is too late and they are fatally undermined.

Investors like Mr Son, excited about the future of startups that focus on AI, are implicitly presuming that a period of disruptive innovation is under way. But most of the recent excitement about generative-AI platforms has focused on their potential as a new technology to be deployed, not as companies which could open up brand new markets. In the case of other recent technological innovations, incumbents have won the day. Elad Gil, a venture capitalist, has noted that the value of previous advances in machine learning, the broader category of which generative AI is a part, have accrued almost entirely to incumbents. The early internet startups have benefited, as have Microsoft and chip firms like Nvidia and Micron. The earlier stages of machine learning produced no listed firms that might be considered the Amazon or Google of their niche.



Christensen's insights make clear that revolutionary innovation does not always end up being revolutionary in business terms. Yet existing tech firms are now spending enormous sums on AI, suggesting they should be well-placed if the tech does turn out to revolutionise business. It is possible an investment in a broad index fund tracking existing listed tech firms will end up outperforming the equivalent investment in private, strictly AI-focused startups.

Theories about why innovation is sometimes disruptive and sometimes not are more often discussed by students of business and management than stockpickers. But the difference between the two possibilities is crucial in assessing whether the next generation of listed tech companies, with market capitalisations in the hundreds of billions of dollars, is to be found among private AI firms. As things stand, it looks more likely that the market value of the technology will end up as a new string to the bow of already giant tech firms.

Free exchange | A wonderful ride

Economics, willingly or not, has inhaled the influence of Robert Lucas



Economics is full of equations named after their inventor. Robert Lucas, who died on May 15th aged 85, was different. His name graces something edgier: a "critique". When he presented an early version, a young economist despaired: "You just explained why everything I've done in the last few years is worthless."

The Lucas critique can be explained with the help of an analogy—one he offered to students graduating from the University of Chicago, where he spent many years as both a student and professor. Imagine a fairground that sells tokens at the entrance for the rides inside, all of which are independently run. Suppose the cashier abruptly doubles the number of tokens per dollar. Fairgoers, flush with tokens, will flock to the rollercoaster, fun house and other attractions. Some ride operators will assume their rides are more popular than they thought. They might even extend workers' hours in order to handle the additional custom.

A statistically minded economist looking at the park's data might conclude that an increase in the token supply leads to heightened activity and employment. They might even advise other fairgrounds to try the same trick. But of course this "policy" only works because ride-operators do not anticipate it. As they realise what is going on, they will raise the number of tokens they require per ride. Prices will rise and activity will return to normal.

Lucas had been one of those statistically minded economists, busy documenting relationships between higher inflation and stronger employment in the giant fairground that is the American economy. Yet his critique showed that these relationships would crumble if policymakers acted on them. They were based on behaviour that would change if policy sought to exploit them. They could be tested but not tried. It was his most influential paper.

He was not particularly proud of it. A critique by definition does not "fully engage the vanity of its author", he noted. He and his intellectual comrades worked hard to give economists something more positive: less crumbly foundations to build on. Economists, he believed, "are basically storytellers, creators of make-believe economic systems". So he and his colleagues built a fantastical new world for wonks to explore.

Lucas had been thinking hard about "dynamics", or how something like work effort evolves over time, and how views of the future affect it today. He thought of his parents: his father welding in Seattle shipyards; his mother painting adverts in "pure white, glossy black and elegant greys". Both worked extra hard during the war, because they expected wages to be lower when it was over.

How do people arrive at these views of the future? In early work, Lucas assumed firms would expect prices to stay much the same. That assumption allowed him to predict industry's capital spending. But investments would predictably change future prices. The price expectations in the model were at odds with the price predictions of the model. To Lucas this seemed inconsistent.

Instead, Lucas adopted the "rational expectations hypothesis". He assumed the actors in his models would expect what the model itself predicted. If an economist can foresee that extra tokens will raise ride prices, then operators should expect the same.

"Rational expectations" were not the same as flawless foresight. The future was uncertain. Thus Lucas assumed markets existed for present, future and merely possible goods, allowing people to strike deals over contingencies. He borrowed the framework from other theorists. But his own life provided the best example. His ex-wife had planned for the contingency that he might one day win the Nobel prize. Their divorce agreement in 1989 promised her half of the potential $1m award. When he won six years later, that contingent claim was fulfilled. "A deal's a deal," Lucas remarked.

With the assumption of rational expectations, Lucas felt he had "eliminated the main intellectual basis" for fiscal and monetary fine-tuning of demand. After all, cashiers could not systematically fool ride operators. "Keynesian economics is dead," he reported in 1979. That report proved exaggerated. Keynesians made a comeback, rejecting his policy presumptions, but embracing many of his methodological choices. These Keynesians provided a new intellectual basis for active macroeconomic policy in a recognisably Lucasian world, albeit one painted in greys, not pure white and glossy black. Later in life Lucas acknowledged that economists of all stripes, Keynesians included, had contributed to the successful stabilisation of spending flows in the post-war period.

Yet to him, the gains to any further taming of the business cycle—stabilising growth even more tightly around its trend—seemed trivial compared with the gains to increasing that trend. His mind turned to the mechanics of growth. "The consequences for human welfare involved in questions like these are simply staggering", he wrote in 1987. "Once one starts to think about them, it is hard to think about anything else".

To think hard about something, for Lucas, was to model it. Abstraction was a necessary prelude to clarity. He once received a laconic note from one of his co-authors, Ed Prescott. "This is the way labour markets work," it said, followed by a single, cryptic equation that Lucas could not immediately understand. He could have asked Ed. He did not. Theorists, he said, do not ask for words to explain equations; they ask for equations to explain words.

Never a drag

Maybe so. But his own sparkling words represented a counter-example to this notion. Other economists were keen to hear as many of them as possible. In his work on human capital, Lucas had pointed out that apprentices pay their mentors indirectly, by accepting a lower wage to hang around them. Some of his colleagues paid a different sort of price. Robert Barro once hung a sign in his office that said: "No smoking, except for Bob Lucas". It was worth inhaling his smoke to ingest his ideas. The Lucas critique bears his name; the whole of macroeconomics bears his mark. ■



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Palaeontology

Digging up the money

The market for dinosaur fossils is booming—to the chagrin of some palaeontologists

In the badlands of central Montana, Clayton Phipps, a third-generation cowboy, makes his living wrangling metre-long horns. It is a lifestyle he inherited from his father and grandfather. But in Mr Phipps's case the horns in question belong not to Montana's herds of Angus and Hereford cattle but the three-horned dinosaur *Triceratops horridus*.

"I describe myself as a dinosaur cowboy," says Mr Phipps. Others would call him a commercial fossil prospector. Mr Phipps spends his time finding, digging up and preparing fossils to sell to prospective buyers. In 2006 he hit the headlines when he discovered "Duelling Dinosaurs", the complete skeletons of a *Triceratops horridus* and a *Tyrannosaurus rex* buried alive by a landslide while locked in a fatal embrace. Pictured above, it is perhaps the most spectacular fossil specimen ever found.

Prospectors such as Mr Phipps supply a flourishing market for dinosaur fossils, fuelled by well-heeled private collectors. The boom started in 2018 when Aguttes, a French auction house, sold the almost-complete skeleton of a carnivorous dinosaur (thought to be a relative of *Allosaurus fragilis*) for $2.4m at a glamorous event on the first floor of the Eiffel Tower. It took off in earnest when Christie's, a London auctioneer, sold "Stan"—one of the most complete *T. rex* fossils ever found—for $31.8m in 2020, a record.

"There has been a serious uptick in demand for dinosaur specimens since then," says Cassandra Hatton, head of natural history at Sotheby's, yet another auction house, this time based in New York. In the past two years, at least six specimens have sold for $6m or more, including the "Duelling Dinosaurs" in 2020. The next big sale is likely to come at the end of July, when Sotheby's is due to auction off another nearly complete skeleton—though it is, for now, tight-lipped on the details.

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For some scientists all this is a travesty. The qualities that make fossils attractive to collectors—rarity, uniqueness and completeness—are also the ones that make them scientifically valuable. That has led to rows in the field, with some worried that the influx of private buyers is bad for science. "There is concern that museums and other tight-budgeted public institutions will be priced out of access to valuable specimens," says Professor Paul Barrett, a palaeontologist at the Natural History Museum in London. In an open letter to Christie's in 2020, the Society of Vertebrate Palaeontology (SVP), an American scientific body, warned that "fossil specimens that are sold into private hands are potentially lost to science."

Bones under the hammer

That has certainly been the fate of some fossils. The dinosaur auctioned by Aguttes in 2018, which may have been a new species, was sold to an anonymous French art collector and has not been seen since. For that reason, many scientific journals—including *Palaeontology* and the *Journal of Vertebrate Paleontology*—refuse to publish studies on privately held fossils. The SVP would like journals to go further, and exclude private specimens that have been given to museums on long-term loans.

Not all palaeontologists agree. Dissenters point out that the evidence that private collectors really are pricing museums out is mixed. The secretive buyer who bought ▸

"Stan" at Christie's in 2020—amid much opprobrium—was revealed in 2022 to have been the Abu Dhabi Department of Culture and Tourism. It bought the fossil as a centrepiece for the Abu Dhabi Natural History Museum, which is due to open in 2025. Likewise, "Duelling Dinosaurs" will, by the end of the year, become the main attraction at the North Carolina Museum of Natural Sciences. Both specimens will be available for scientists to study as well as for the public to admire.

Even when specimens do end up in the hands of private collectors, their owners are often happy to support scientists. Niels Nielsen, a former Danish investment banker, bought "Tristan"—a jet-black *T. rex*—in 2014, then offered the fossil to the Natural History Museum in Berlin on long-term loan, free of charge. "Tristan" has rotated between the Natural History Museums of Berlin and Copenhagen ever since.

A similar arrangement has been announced for "Big John"—the largest specimen of *Triceratops horridus* ever found. In 2021, "Big John" was sold for $7.7m to a buyer later revealed to be Siddhartha Pagidipati, an American businessman. The fossil is due to be sent on long-term loan to the Glazer Children's Museum in Tampa. "Our interest in purchasing "Big John" and other specimens is first and foremost to make them available to the public and for research," says Mr Pagidipati.

Not everyone agrees with research bans in journals, either. Oliver Rauhut is a curator at the Palaeontological Museum in Munich and one of almost 50 signatories to a letter published in *Paläontologische Zeitschrift* in 2020 criticising the SVP's proposals. He has pointed to the example of *Archaeopteryx*. First described in 1861, this was an early species of feathered dinosaur that helped prove that modern birds are descended from the ancient reptiles. Every one of the dozen known specimens of *Archaeopteryx* was found, collected and prepared by enthusiastic private collectors. Excluding such fossils from the scientific literature simply because they are privately owned "seems arbitrary", wrote Dr Rauhut in a paper on the topic.

Others argue that scientists in the field, despite their noble motives, could use some help. "Every year, thousands of fossils around the world are exposed to the elements by ordinary geological processes before being weathered to dust without a trace," says Ms Hatton, of Sotheby's. In December 2022 her firm sold "Maximus"—a remarkably intact *T. rex* skull—for $6.1m. The rest of the specimen, barring a badly eroded clavicle, had crumbled from exposure to ice, wind and rain. If it had been found earlier, she says, more of the skeleton might have been recovered. "In the real world, most public institutions barely have the necessary staff and funds to ensure basic operations," says Dr Rauhut, who thinks private collectors can provide useful support for public institutions.

Almost all of the fossils bought at auctions in recent years were taken from the Hell Creek formation, a geological deposit that spans much of Montana, Wyoming and the two Dakotas. There is a good reason for this: in America, there is clear legal precedent guaranteeing that fossils discovered on private land belong to the landowner and can be legally traded.

That is unusual. Besides Hell Creek, the most important fossil-bearing deposits in the world are in Qinjiang in China, the Gobi Desert in Mongolia, Campanha in Brazil and Argentine Patagonia. In all four countries, dinosaur fossils are considered the property of the state. That does not stop trade—but it does push it into the black market, where crime syndicates smuggle fossils across national borders. Given their illegality, such fossils are unlikely ever to end up in a scientist's hands.

That belongs in a museum

The keenest supporters of privatised fossil-hunting argue that the growing legitimate market might help curb the dodgy one. Big Western auction houses, often pilloried for enabling sales to anonymous billionaires, demand the same sort of provenance assurances as they do for fine art and antiquities. The hope is that will make it harder for unscrupulous dealers to pass off ill-gotten specimens as legitimate. "It may not always seem like it," argues Ms Hatton, "but we are all on the same side." ■

Space art

Painting the heavens

A pair of art projects promise selfie comets and artificial meteor showers

For most of its history, spaceflight has been done with military, scientific or commercial motives in mind. But lighter-hearted uses are possible too. Wealthy space cadets can already buy trips into orbit (the next such mission, run by a firm called Axiom Space, is due to take four astronauts to the International Space Station on May 21st). Now two groups are planning to use the heavens for art. One wants to build an artificial comet; the other to set up man-made meteor showers.

Start with the comet. In a paper published in *Acta Astronautica*, Greg Pass, an academic at Cornell University, and his colleagues describe their plans for an art project that would allow up to a billion people to have tiny self-portraits launched into space and blown out by the sun, forming the tail of a man-made comet.

Natural comets are space-going balls of rock and ice in highly elliptical orbits. When they are far from the sun, they are dormant and invisible. As they get closer, a mixture of radiation and the solar wind causes them to start spewing water and dust. Those tiny particles reflect sunlight, giving comets their spectacular tails. Dr Pass and his colleagues propose to substitute those grains of dust and ice with millions of tiny self-portraits. The project is called the Altimira comet, after a cave in ▸▸



One day, maybe...

Spain featuring neolithic handprints—"prehistoric selfies", as the team describe them—on the walls.

Natural comets are big, at least by earthly standards. Halley's comet, which flies past the sun every 75 years or so and is easily visible from Earth, is about 15km across. The Altimira comet, by contrast, is designed to fly as a CubeSat—a miniature satellite 10cm on each edge. CubeSats are designed to tag along as passengers on the launches of bigger spacecraft.

The CubeSat specification limits the satellite's payload to a volume about the size of a cricket ball. Reproducing something approximating the effect of a natural comet from such a small space will be tricky. Each of the portraits must be tiny—about 12 millionths of a metre across. The plan is to etch them into silicon and then coat them with gold to help them sparkle upon release. The team has proposed an orbit that would see the comet pass within 15,000km of Earth—a hair's breadth in space. Even so, big telescopes would be needed to see the resulting display.

Still, the plan seems technically feasible. The paper demonstrates that making the gold-coated selfies can be done at scale. With the help of electron-beam lithography, Dr Pass and his colleagues produced 5m of them and suspended them in a vial of water. They are working with a Japanese chip-making firm called NuFlare Technology to scale up production.

The artificial meteor showers, meanwhile, are the brainchild of ALE, a firm based in Tokyo. Natural meteor showers are caused by small particles of dust and rock burning up in Earth's atmosphere. ALE hopes to recreate the phenomenon on demand by filling small satellites with tiny spheres about 1cm across.

Putting the satellite in the proper orbit, and releasing the spheres at the right moment, would allow it to create spectacular meteor showers anywhere in the world. The company reckons its ersatz meteor showers should be visible from about 200km away. And because its meteors will be travelling more slowly than the natural kind, each streak of light should remain visible for longer.

As is *de rigueur* for any self-regarding art project, both endeavours strike a high-minded tone. Altimar's billion selfies, apparently, will be an "individually expressed act of collective participation". ALE hopes to "contribute to the sustainable development of humankind". But plenty of unglamorous engineering will need to be done first. The Altimira comet will need to scale up its selfie-production process and find a suitable rocket on which to hitch a ride. ALE was originally due to test its idea with a satellite launched in 2019, but was stymied by technological problems. It now plans the first demonstration for 2025. ■



Genetic surveillance

The DNA dragnet

Scientists can pull human DNA from the air—and identify individuals

IN THE GENETIC age, ecologists' jobs are made much easier by two things. One is that every organism carries its own chemical identity card, in the form of its genome. The second is that they drop these ID cards everywhere they go. Urine, bits of fur stuck to a hedge, even shed skin cells: all deposit DNA into the environment. Cheap gene sequencing allows scientists to harvest this "environmental DNA" (eDNA) from soil, sand, water and the like, and use it to keep track of which species are living where.

"Every organism," of course, includes humans. In a paper published on May 15th in *Nature Ecology & Evolution*, a group of researchers from America and Europe report that such eDNA surveys pick up large quantities of human DNA as well as the animal sort. That DNA can be read—and potentially matched with individuals—by anyone with the right equipment.

The researchers did not set out to study "inadvertent human genetic bycatch", as they call the phenomenon. The work began at the Witney Sea Turtle Hospital in Florida, during an investigation into a viral turtle disease. The researchers sampled water from the turtle's tanks, as well as from ocean water and beaches upon which the creatures nested, looking for viral DNA.

They expected to sweep up DNA from other species during their trawl. What was surprising, according to Jessica Farrell, a biologist at the Witney Hospital and one of the paper's authors, was just how much human DNA they found. Even though many of their sampling sites were not near towns and cities, they found human genetic material in every sample they examined.

Intrigued, they expanded their search. In both Florida and in Ireland they found human DNA in rivers, with concentrations especially high as they flowed through towns. They found it in beach sand, and even in air from rooms in which humans had been working. Human DNA is not quite everywhere: it was not detectable in deep-ocean water, or on remote beaches closed to the public. But anywhere that humans are, their DNA appears to be as well.

In one sense, that is unsurprising. But advances in gene-sequencing meant there was enough information in the samples to deduce plenty of things about the humans in question. The researchers could pick out males thanks to DNA from the Y chromosome. They could infer an individual's ancestry, and even spot mutations that affect susceptibility to disease. David Duffy, another of the paper's authors, said the amount and quality of the DNA they recovered "far exceeded" the minimum necessary to be included in America's database of missing people. Dr Duffy and his colleagues did not try to identify individuals in their study, for ethical reasons. But they had no doubt it could be done.

All this raises uncomfortable questions. The most immediate probably apply to scientists themselves. Most countries have far stricter rules governing the collection of human DNA than of other sorts. If studying eDNA in turtles—or any other organism—necessarily involves gathering human genetic information too, ecologists will have to be more careful with their data.

In the longer run, the researchers speculate about all sorts of uses. Police might trawl room air to help establish a crime suspect's movements. Prompted by covid-19, many countries are beginning to use genetic surveillance of waste-water to track viruses. Crunching the human DNA too, especially at the level of individual streets, might have health benefits, such as quickly spotting cancer-causing mutations in people's genomes. It could also allow governments to build up uncomfortably detailed pictures of their populations.

For now, all that may seem fanciful. But the cost of genome sequencing has fallen a hundred-thousand-fold since the turn of the century. Opportunistically analysing the human DNA that suffuses the environment is only going to get cheaper and easier. As the ecologists can attest, it offers another way for humans to keep track of who, exactly, their fellow humans are—and what they are up to. ■

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Climate change

Mercury rising

The world is likely to breach its 1.5°C climate target before 2028

IN 2015, in Paris, the nations of the world committed themselves to trying their best to prevent the planet warming by more than 1.5°C from its pre-industrial state. Even at the time, the goal looked ambitious. In recent years, it has come to seem almost impossible.

On May 17th the World Meteorological Organisation (WMO), an arm of the United Nations, added to the gloom. It said there was a 66% chance that the world would exceed the 1.5°C threshold in at least one of the next five years. That is a big jump from its estimates of even a year ago, when the WMO assessed the likelihood at 48%. Even if the 1.5°C target is not breached, the WMO thinks it is virtually certain that one of the coming five years will be the hottest in human history. (That record is now held by 2016, which was 1.28°C warmer than the pre-industrial average.)

Optimists point out even if the 1.5°C threshold is breached in the coming half-decade, temperatures will likely fall back again, at least for a while. The Paris agreement would not, technically be breached. (That would require exceeding 1.5°C for several years.) Over the next few years the growing level of human-driven warming will be amplified further by natural, but transient, changes.

The biggest of those variations is the El Niño Southern Oscillation (ENSO), a natural cycle of warming and cooling in the waters of the eastern Pacific ocean that has widespread effects on the climate. The world has just seen three consecutive "La Niña" years, the name given to the cooler phase of the cycle, helping hold global temperatures down. It now seems almost certain that a warmer "El Niño" phase will begin sometime later this year, setting up 2024 to be a scorcher. (One reason for the 2016 record is that the year coincided with an especially strong El Niño.)

But the ENSO is not the only factor. An additional temporary nudge could come from the eruption last year of the Hunga Tonga-Hunga Ha'apai volcano, near Tonga. It was one of the biggest eruptions since that of Mount Pinatubo in the Philippines in the 1990s, and injected an estimated 146m tonnes of water vapour into the stratosphere. Water vapour, like carbon dioxide, is a greenhouse gas. Unlike carbon dioxide, it will gradually fall out of the stratosphere over the next few years. But Stuart Jenkins, a climatologist at Oxford University, reckons that while it persists it could increase the odds of passing 1.5°C by a few percentage points.

Some tentatively encouraging signs gleam amid the gloom. Global emissions of greenhouse gases from fossil fuels seem to have gone sideways for several years, leading some researchers to speak cautiously of a possible peak. Rystad Energy, a Norwegian think-tank, predicted earlier this year that global emissions of carbon dioxide from industry could peak in 2025 and then begin a slow decline.

Even so, the world's actions still fall far short of its promises. Even the upper end of the goals agreed in Paris—of limiting warming to "well below 2°C"—will be achievable only with drastic action. For Europe and America to meet their commitments, for instance, would require them to switch off all their fossil-fired power plants within the next three decades.

And simply stopping emissions will not be enough. Somewhere between 3.5bn and 5.4bn tonnes of carbon dioxide will need to be sucked out of the atmosphere every year, rising to 4.7bn to 9.8bn tonnes within 30 years. All that is a big ask, to put it mildly. But the optimist's take might be that the psychological impact of breaching the 1.5°C goal, even if only temporarily, could help focus minds. ■

The future of farming

Bug-fed steak

Insects could help turn beer waste into beef

EATING INSECTS is one of those ideas that never quite seems to catch on. The United Nations endorsed the idea a decade ago, but, in the West at least, bugs remain mostly absent from supermarket shelves. Faced with an indifferent—or disgusted—public, scientists have been exploring other options. One is to feed the insects instead to livestock, which are not so picky.

Of course, the insects need to eat, too. To date, they have mostly been reared on leftover chicken feed. But the supply of that is limited, and if insect-reared meat is to take off, new sources will be needed. In a paper in *Applied Entomology*, Niels Eriksen, a biochemist at Aalborg University, suggests feeding them on the waste products of the beer industry.

The world knocks back around 185bn litres of beer every year. Each litre produces between three and ten litres of wastewater full of discarded barley and yeast . The mix is rich in protein but deficient in carbohydrates, especially compared with chicken feed. Most insects grown for feed depend, in the wild, on the carbohydrates found in rotting fruit. Whether insects would actually consider brewery waste a square meal was, therefore, unclear.



It's what's for dinner, indirectly

The researchers used the larvae of the black soldier fly, a workhorse of the "entomoremediation" world. The juvenile insects were divided into three groups, which were offered beer waste, chicken feed or a mixture of both. The researchers monitored both their weight gain and the amount of carbon dioxide they exhaled, which helped assess the insects' metabolic performance.

The larvae happily consumed both brewery waste and chicken feed, and grew equally well on either food source. When Dr Eriksen ground some up and chemically analysed the resulting paste, he found few differences in how nutritious the insects would be to farm animals. The results confirmed one of Dr Eriksen's hunches. Although black soldier fly larvae favour rotting fruit in the wild, they are capable of eating carrion too. Like beer waste, it too is rich in protein and low in carbohydrates.

The experiment may have implications beyond the brewing business, too. Bone meal from slaughterhouses, sugar-beet waste and waste from other fermentation industries (such as those that produce bioethanol) are all likewise plentiful and protein-rich. All now look to be reasonable targets for nutrient recycling by insects. Whether consumers will be willing to eat insect-reared beef, though, remains to be seen.



Arthur Miller in Beijing

Death and rebirth of a salesman

BEIJING

Forty years ago, a great American playwright visited China to direct one of his best-known plays. The episode still resonates

SINCE MAO ZEDONG'S death in 1976, China's cultural history has involved doors cracking open and promptly slamming shut again. Hopes for renewed artistic freedom have been dashed by political caution. This month, some in China have reminisced about an event 40 years ago that came to symbolise the dream of openness: the visit in 1983 of Arthur Miller to direct his play "Death of a Salesman".

The country Miller visited that spring was still emerging from the wreckage of Mao's Cultural Revolution. But it already crackled with the electricity of creative experiments. Though a campaign would soon be launched to control "spiritual pollution", artists sometimes enjoyed a surprising and exhilarating leeway. Gao Xingjian, a playwright who had translated avant-garde Western work in secret, began staging his own absurdist plays in the early 1980s. (He left China in 1987 and won the Nobel prize for literature in 2000.)

Chen Kaige and Zhang Yimou, two film-makers, would in 1984 release the first of a new wave of Chinese films, "Yellow Earth", which, as well as being visually rich and beautiful, took a nuanced view of life in China. The new freedoms extended to some foreign artists, too. After arriving with 60 musicians and 15 tonnes of stage kit in 1981, Jean-Michel Jarre dazzled the emerging Chinese music scene—and strained the power grid—with the five concerts he played in Beijing and Shanghai.

Into this ferment stepped America's greatest living playwright. Long fascinated with China, Miller first visited as a tourist in 1978. This time he had six weeks to direct a Chinese cast, in a language he did not speak, performing his critique of the American dream of 1949. (Beset by failure and frustration, and haunted by his past adultery, Willy Loman, the salesman of the title, retreats into fantasy and ultimately kills himself.) Many Chinese artists look back at the production as a high point of cultural engagement with America.

At its heart was Miller's partnership with Ying Ruocheng, a celebrated Chinese actor who translated the script and played Willy. "I have never had this kind of relationship with an actor," Miller said of Ying. Born into a prominent family in Beijing, Ying first read "Salesman" as an undergraduate in 1949, just as Communist China was closing to the world. It stuck with him through the turmoil of the Mao years, during which he was imprisoned. He and Miller discussed working together in 1978. Miller had wanted to stage "The Crucible", his allegory of the McCarthyite witch-hunts that also echoed the Cultural Revolution. Ying persuaded him that "Salesman" would be "a breath of fresh air", looking forward, not back.

Miller kept a diary, published in 1984 as "Salesman in Beijing". In it he records how, at the first rehearsal, he told the actors that he wanted to discuss "the problem of how to act like Americans". The answer was simple: "You must not attempt to act like Americans at all." This meant ditching the Chinese convention of actors donning blond wigs and heavy make-up to try to look like Westerners. As Ying later put it, he and Miller wanted audiences "to know ▸▸

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the pulse of [the characters'] hearts, not the colour of their hair". Slowly, the cast adapted. "It soon turned out that the Moon is the Moon and actors are actors," Miller wrote; "the same everywhere."

Some cultural divides were harder to bridge. "There were not many salesmen in Beijing in those days," recalls Li Shilong, who played Biff, one of Willy's sons. More fundamentally, Chinese audiences were not used to moral ambiguity. The scene in which Willy's affair is revealed was a worry. Miller realised that one of the virtues of "Salesman" was its invitation to sympathise with a flawed man—in other words, that it "let the real world into Chinese art".

Opening night on May 7th, attended by the American ambassador and other dignitaries, was a triumph. "The audience rushed forward to the edge of the stage, shouting and pointing," Ying would recall. "We have very few dramas like this, and none of this intensity," a young Chinese man told the *Los Angeles Times*. "We are very big on politics, the problems of the society, on history and so forth, but very rarely does one deal with the problems of the person, of the individual in society."

What recommended the play to Chinese audiences, agrees Mr Li (now 77), was its focus on relationships. "Chinese are keen on families," he says. "Everyone has parents. Everyone has siblings." In cultural terms, the production was "a watershed moment" in Sino-American relations, says Claire Conceison of MIT, who co-wrote "Voices Carry", Ying's autobiography. "It brought in a new type of play that blended realism and Expressionism, and also a new approach to depicting foreigners onstage." Chinese officialdom made surprisingly little use of Miller's critique of capitalism: the post-Mao urge to re-engage with the world was still strong.

Miller left straight after the premiere. The play ran for over 50 performances in Beijing, then toured Hong Kong and Singapore. Ying went on to translate and direct other Western plays, such as, in 1986, "Amadeus" by Peter Shaffer. The next year he was cast in Bernardo Bertolucci's film "The Last Emperor". By then his skill in navigating tricky political terrain had earned him an appointment as the country's vice-minister of culture. He helped bring Charlton Heston to Beijing to direct "The Caine Mutiny Court-Martial" in 1988.

Things changed, though, with the killing of hundreds of protesters in Beijing the next year. Ying resigned from the government in 1990 (he did not stop acting and directing). For years, experimentation became rarer and riskier.

Yet the episode continues to resonate. Ying died in 2003, Miller in 2005, but the collaboration between the two artistic giants is an enduring source of fascination for Western Sinophiles. The story of "Salesman" in Beijing is the focus of two separate plays currently in development, one in New York, the other in Canada.

Theatre professionals in China have had to battle with a difficult system. "China is not lacking in good writers," says Mr Li, the actor, but "writers cannot write what they want." Nevertheless, the influence of "Salesman" lingers. Western shows (if only the uncontroversial kind) draw crowds today. In Shanghai "The Woman in Black", a ghost story adapted from London's West End, recently played to packed houses.

Attention must finally be paid

And as China's economy and society have evolved, some art forms have been reinvigorated (even if political themes remain off-limits). Critics in Beijing praised a recent production of "Sunrise", a penetrating drama set in the 1930s by Cao Yu, who met Miller on both his visits. New experimental work is emerging too, says Professor Conceison. She points to Meng Jinghui, a director who mixes "playfulness with social commentary and dystopian elements" and whose shows have toured America, Europe and Australia. "There is a vibrant theatre scene in China," she says, "and it is gaining traction globally."

Flawed heroes are now familiar on the Chinese stage. Another well-known director, Li Liuyi, put on a revival of "Salesman" in 2012 and says it felt much more relevant in 21st-century China than it did in 1983. These days middle-class audiences can sympathise with the struggles and fears Miller depicts. Four decades ago, Willy Loman was an ambassador from an alien world; today he is no longer a stranger. ■

Annals of cybercrime

Hacked, line and sinker

Understanding cybercrime is the first step towards preventing it

Fancy Bear Goes Phishing. By Scott Shapiro. *Farrar, Straus and Giroux; 432 pages; $30. Allen Lane; £25*

IN 1928 MANY countries signed the Kellogg-Briand pact, which outlawed war. Though often derided as hopelessly idealistic, it had important consequences. Until then, war had been a lawful way for states to settle their differences; by contrast, economic sanctions were illegal. After the second world war, the document served as the legal basis for the Nuremberg trials. A draft of the United Nations charter included its terms almost verbatim.

The status of computer hacking in international law is now similarly irrational. Espionage is basically legal; interfering in the internal affairs of another state is not. Yet when does cyber-espionage tip into cybercrime or even cyber-warfare? If definitions are slippery, preventing cyber-attacks is even harder. ▸▸



They can be ordered by one country, perpetrated by a civilian in a second, using computers in a third to disable those in a fourth, with tracks hidden along the way. To some, the prefix "cyber" suggests the associated wrongs are as resistant to regulation as old-fashioned war can seem to be.

Scott Shapiro, a professor at Yale Law School and erstwhile computer programmer, is well-placed to tackle these quandaries. He is also the co-author of "The Internationalists", a history of the Kellogg-Briand pact published in 2017. His new book chronicles the internet's vulnerability to intrusion and attack by forensically examining five hacks that typify different kinds of threat.

Russia, if you're listening

It begins with the Morris Worm, the internet's first worm (ie, a self-replicating piece of code that slithers from computer to computer). It came about in 1988 through an experiment-gone-wrong by an American graduate student, which exploited the openness of networked computers. Next comes Dark Avenger, a virus that destroyed computer data in the 1990s. Third is the hack in 2005 of Paris Hilton's mobile-phone data, which revealed nude photos of the celebrity. The hacker didn't compromise the phone but rather servers in the cloud on which the images were stored.

The book's most outrageous and troubling attacks are its last two, both in 2016. First, the hack of the Democratic National Committee and Hillary Clinton's presidential campaign, through which tens of thousands of private emails were leaked. That was traced to Fancy Bear, the name security researchers gave to a Russian military hacking unit. It stole passwords using "phishing" emails, which lure people into clicking links or divulging passwords. Seven years ago this took authorities by surprise; now it might be seen as a hostile act.

Professor Shapiro's final example is the Mirai botnet (a botnet is a network of robots, or compromised computers). At one point its code commandeered more than 300,000 computers, mainly in online devices such as security cameras. Most networks can handle an attack of 1 gigabit-per-second of traffic; Mirai's army amassed over 600 gigabits.

The three young men who were responsible had been offering to take down websites for as little as $100. They were caught by an enterprising FBI agent who realised they weren't evil criminals but socially awkward teenagers. Under his mentorship, they confessed and avoided prison by helping the FBI fight cybercrime—notably the new botnets based on their code.

The author masterfully blends consideration of two sorts of code, software and legal. "Downcode" is his name for the computer programs that run the attacks; what he calls "upcode" includes the laws, social norms and psychology that let the raids happen. Combating hacks means dealing with both, he notes. His narrative zips between technical explanations, legal reasoning and the ideas of thinkers including René Descartes and Alan Turing.

The hacks have common features, it transpires. Insular young men are often responsible (using meagre resources, not state bureaucracies). The scale of the damage is disproportionate to the effort the perpetrators expend. And the attacks are extremely hard to prevent or prosecute.

A solution to hacking is not available, alas. But Professor Shapiro at least succeeds in making the subject intelligible to non-specialist readers. And in the spirit of the Kellogg-Briand pact, he offers suggestions to help make systems secure, such as doing away with default passwords on networked devices. He aims, in other words, to strengthen the "upcode" and so weaken malicious "downcode". ■

New American fiction

The mourning after

The Guest. By Emma Cline. *Random House; 304 pages; $28. Chatto & Windus; £18.99*

AN OMINOUS MOOD sets in early in "The Guest" and persists for the duration of this taut, tense novel. Alex, the story's 22-year-old protagonist, is not just down on her luck: she is completely out of options. Her work as an escort is not proving lucrative, and she is barred from many of the hotel bars where she used to pick up clients. She has been kicked out of her shared flat for stealing pills and failing to pay the rent. Simon, an older man—he is a benefactor first, a lover second—offers salvation in the form of a stay in his luxurious beach house for the summer.

But Alex is unable to make the good times last for long. High on painkillers, she crashes Simon's car; later she gets drunk and disgraces herself at a party. She is soon cast out of this home, too. She cannot return to the city (which city is not mentioned). She stole cash and drugs from Dom, an acquaintance, before she absconded, and he is violent and vengeful.


Ghosts at the feast

Alex decides that Simon only needs some space and that they will reunite at another upcoming party. In the subsequent days, she survives using her charm and wits alone. She finds places to sleep and food to eat by adapting to the opportunities presented to her. She ingratiates herself first with a group of partygoers, then a kindly housekeeper, then a troubled teenage boy.

"The Guest" is a strong follow-up to Emma Cline's bestselling debut novel, "The Girls". Her prose is limpid and propulsive, sustaining an atmosphere of dread. Alex's broken phone offers a reprieve from Dom's constant messages, but it also means he could appear without warning. Ms Cline witheringly evokes her affluent country set: the "daughters of the rich" were "pitiable because, in the end, they could buy everything but beauty".

Unlike Edith Wharton's "The House of Mirth", which chronicles a woman's narrowing choices and descent into poverty, "The Guest" does not say how Alex came to be in this position. Her upbringing was "ordinary", so her self-destructive tendencies are not reducible to "some logical equation—*x* had happened to her, some terrible thing, and so now *y* was her life."

This can be frustrating for a reader hoping to understand Alex more fully, yet it underlines how adept she is at performance. By the end of the novel, Alex's sense of self has been eroded entirely. "Maybe she was the ghost she had always imagined herself to be," Ms Cline writes. "Maybe it was a relief."



World in a dish

Tender is the night

The choice between chicken wings and tenders raises a deeper question: should food be a challenge or a comfort?

PICTURE THE scene. You are perched on a stool at a bar. A sport—basketball, say, or baseball—is playing on a screen above. A beer sits in front of you, its icy base adhering to the paper mat. And then a basket appears, lined with some kind of grease-resistant paper, celery sticks sprouting from one end next to a pot of blue-cheese dip. The main event will be one of two things, buffalo chicken wings or buffalo chicken tenders. Which you choose says more about you than you might think: do you want to fight your food or inhale it?

Cheap, salty and popular, chicken wings and tenders are now the quintessential bar snacks. But poultry's popularity in America is relatively recent. Chicken production boomed during the second world war. In the 1940s the US Department of Agriculture launched the "Chicken of Tomorrow", a contest to develop fatter and faster-growing birds. Production became more industrialised and efficient. By the 1950s what had been one of the most expensive meats was the cheapest.

For years Americans preferred white meat and sent their chicken wings to China. The invention of buffalo chicken wings in upstate New York in the 1960s single-handedly changed the structure of the global chicken trade, argues Emelyn Rude in "Tastes Like Chicken: A History of America's Favourite Bird". America began keeping its wings and sent China only the feet.

But those home-grown bosomy birds also left America with lots of white meat. One result was chicken tenders. Unlike nuggets—which, says the original recipe, are 85% "mechanically deboned spent layer meat"—tenders are a single piece of meat. They are formed from tenderloin, the pectoralis minor muscle, found beneath the breast but smaller and thinner.

Chicken tenders satisfy a common desire, perhaps most acute in America, for consistency and convenience. Cooking chicken wings is tricky. The drumette and the wingette may cook unevenly. Getting the skin crispy is a skill, leaving it flabby—a crime. Eating them is no simpler. Smears of sauce wind up slicked around your mouth and stuck under your fingernails. The meat has to be prised from the bones. The texture varies; there is cartilage and gristle to contend with. (Elsewhere that is a bonus: knobbly chicken feet and tense little gizzards are relished in China precisely because of their texture.) Finally, wings have a certain discomforting realness. Like legs, they are recognisably part of an animal in name and appearance.

Tenders—battered or breaded—are a more straightforward proposition for both chef and eater. There is no skin with which to battle. Each bite is identical, the texture unvarying. Many people value uniformity in what they eat: the appeal of fast-food chains lies in large part in customers' appreciation of the fact that, wherever they are, they know they will be served the same items, cooked in the same way.

For some, comfort food means not having to think too much about what they are eating. For others, it means food that requires enough concentration to avoid thinking about anything else. ■

German history

Sins of the grandfathers

Fatherland. By Burkhard Bilger. *Random House; 336 pages; $28.99. William Collins; £25*

GERMANS BORN in the 1940s came of age in a shattered world. The *Kriegskinder*, or children of the war, inherited a country of ruins and silence. Cities were choked by rubble; millions of people were displaced.

Yet the recent Nazi past was rarely discussed. The breakneck post-war German recovery rested on a shame that, for many people, was too deep for acknowledgment. It emerged in subtle and unspoken ways nevertheless. One *Kriegskind* ascribed his lifelong fear of swimming to a memory of being strafed by Allied planes as he played in the River Weser. During the first Gulf war of 1990-91, some elderly Germans hoarded food and water, instinctively bracing for a conflict that was happening thousands of miles away.

Burkhard Bilger's parents were part of that silent generation. In "Fatherland", Mr Bilger, a German-American writer for the *New Yorker*, reckons with the weight of Germany's Nazi past—and his own troubling genealogy. His book tells the story of his maternal grandfather, Karl Gönner, a soldier, teacher and Nazi administrator in the small village of Bartenheim in occupied Alsace. Mr Bilger's search was prompted in part by the realisation that, as his mother and her siblings aged, he would soon lose his last living links to the war.

"Fatherland" evokes Gönner's upbringing in the Black Forest with aplomb. This, in Mr Bilger's telling, was a spectral landscape, almost medieval in its grinding, candlelit poverty. Gönner's family, in particular, seems haunted. His father, a drunken gambler, died by suicide; his mother saw spirits. One of their homes had been owned by a conjuror who studied the occult in a secret annexe. Gönner himself wanted to be a priest, but was drafted to the Western Front during the deadly final spasms of the first world war. A landmine killed his best friend in autumn 1918; Gönner himself went home "hobbled and half-blind". He carried that war inside him as Europe lurched towards the next.

Mr Bilger's central concern is the question of complicity. To what extent was his grandfather a willing participant in the Nazi war machine? The evidence appears damning. Gönner joined the National Socialists well after Hitler's expansionist ambitions and noxious anti-Semitism were ▸▸

obvious. As a teacher in occupied France, he was on the front line of the Nazi propaganda push: "Every lesson was an indoctrination, every field trip a political rally." As his grandson puts it, he served in "a war fought with erasers and chalk".

As he digs deeper, though, Mr Bilger unearths a more complex picture. Like the Alsace region, which changed hands four times between 1862 and 1945, Gönner's biography splinters into a "spider's web" of conflicting loyalties. As a local party boss, he turned a blind eye to draft-dodgers, even as thousands of Alsatian men were sent to the Eastern Front; many perished in Soviet prisoner-of-war camps in appalling conditions. Tracked down during Mr Bilger's dogged reporting, Gönner's French students remember him as firm but fair. None was among the estimated 5,000 Alsatian children who died in Nazi facilities after being torn from their parents.

On balance, Mr Bilger exculpates his grandfather—and, by emotional if irrational extension, himself. "His story belies the idea of irredeemable sin," he concludes. Though history often preserves the imprint of horror, he notes, the eddies of individual consciences are generally lost. Compared with this moral inquiry, the analogies Mr Bilger tries to draw with right-wing politics and anti-immigrant sentiment in contemporary America seem flimsy. The gulf between his grandfather's tale and today is too wide.

This is still a wonderful book. In a powerful passage, Mr Bilger takes part in a *Familienaufstellung*. Part-séance, part-therapy, these ceremonies encourage Germans to revisit moments from the past, so exorcising their tortured history. "Fatherland" achieves a catharsis of its own. ■

Back Story The rest is silence



Quiet works of art can sometimes make the deepest impressions

"QUIET" IS A harmless word that, in the cultural world, can be a euphemism, even a slur. Often it refers to tales of humdrum lives that lack the hoopla of seismic themes, exotic settings, twists and gore. A quiet book, in literary-speak, is one that doesn't sell. More than ever, a quietly humane film is likely to be shouted down by superheroes. That is a shame, as quiet art can be moving and profound.

"Western Lane", a debut novel by Chetna Maroo, is audacious in its quietness. Gopi, its 11-year-old narrator, is the youngest of three Gujarati sisters in southern England whose mother has died. Their bereft father gets them to take up squash; Gopi aims to play in a tournament. She befriends a boy called Ged, visits relatives, goes to a funfair.

This restrained plot is related in a boldly understated style. Tune into its wavelength, though, and you hear a symphony of emotion. Through the half-understood exchanges and scenes her narrator recounts, Ms Maroo beautifully conveys the eddies of guilt and recrimination in a bereaved home, and the way feelings can be experienced as physical sensations (proximity to Ged "made my heart stand up"). She shows how thoughts can be expressed without words: Gopi reads her father's despair in "his shoulders, his throat, the white bones visible under his skin". Squash embodies her struggle to contain the turmoil of grief and growing up.

William Wordsworth made the case for a similar approach to art in 1800. His poetry would describe "situations from common life", he avowed, and employ "language really used by men"; feelings would take precedence over action. In a lament that is eerily apposite in the lurid age of social media, Wordsworth decried the "craving for extraordinary incident, which the rapid communication of intelligence hourly gratifies". He was sure "the human mind is capable of being excited without the application of gross and violent stimulants".

"One Fine Morning", a new film by Mia Hansen-Love, is exciting in the way Wordsworth meant. Its opening sequence is screamingly quiet. Sandra, a widowed mother played by Léa Seydoux, goes to see her father in his Paris flat. He is losing his memory and sight and has trouble letting her in. Next she picks up her daughter from school and takes her to a park. Her job as a translator, including at a ceremony on Omaha Beach, offers fleeting glimpses of wider issues. But her own quiet dramas are defiantly the main event.

"You must show you're there," another infirm relative tells Sandra, explaining why she still ventures outside. "That you're a living person." This is the film's philosophy: depicting a quiet-seeming life, it insists that lives are rarely quiet for the people who are living them. Sandra's commitments pile up and collide, as they often can. Her father has to be institutionalised, her child develops phantom aches, she begins an affair with a married friend. In a quietly exquisite moment, she is taking a bus back from a harrowing old-people's home when a text from her lover arrives; she looks over her shoulder, abashed in her joy, then starts to cry. Her happy-sad tears are reflected in the bus's darkening window.



Your reflection is everywhere in Yayoi Kusama's immersive "Infinity Mirror Rooms" at Tate Modern in London. But the crowds drawn by the feted Japanese artist mean that, even if you manage to get a ticket, you can't loiter for long in her flashy installation. Two floors down, a show devoted to Magdalena Abakanowicz is quieter and deeper.

Though she eventually made some grand public sculptures, the Polish artist worked principally with textiles, a medium liable to be dismissed as antiquated or (chauvinistically) as feminine and domestic—in other words, quiet. Abakanowicz declared that she was "interested in the path of a single thread". In the late 1960s, that path veered off the walls on which textiles traditionally hung, and her sisal, burlap and horsehair threads took on three dimensions.

Encountering what became known as her "Abakans", woven artworks suspended hugely from the ceiling in black, ochre and blood red, your instinct is both to climb inside them and run away. They look as if they could cradle or entomb you. Rope spills like entrails from one; another resembles a heart, with openings that might be arteries. In a piece called "Pregnant", a tear in the rumpled fabric could be a way out or a wound.

Light filters through the slits in these sculptures, which cast their shadows over you like trees or shaggy giants. The art is silent but magically alive.

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Economic data

	Gross domestic product % change on year ago latest		quarter*	2023†	Consumer prices % change on year ago latest		2023†	Unemployment rate %		Current-account balance % of GDP, 2023†	Budget balance % of GDP, 2023†	Interest rates 10-yr gov't bonds latest,%	change on year ago, bp	Currency units per $ May 17th	% change on year ago
United States	1.6	Q1	1.1	1.0	4.9	Apr	3.8	3.4	Apr	-3.0	-5.4	3.6	59.0	-	
China	4.5	Q1	9.1	5.7	0.1	Apr	1.7	5.2	Apr‡§	1.7	-2.9	2.6 §§	-1.0	7.00	-3.6
Japan	1.3	Q1	1.6	1.1	3.3	Mar	2.2	2.8	Mar	3.2	-5.8	0.4	13.0	137	-5.9
Britain	0.2	Q1	0.5	-0.2	10.1	Mar	6.0	3.9	Feb††	-2.9	-5.4	3.8	209	0.80	nil
Canada	2.1	Q4	nil	0.7	4.4	Apr	3.3	5.0	Apr	-1.0	-1.5	3.1	8.0	1.35	-5.2
Euro area	1.3	Q1	0.3	1.0	7.0	Apr	5.7	6.5	Mar	1.6	-3.6	2.4	130	0.92	3.3
Austria	2.6	Q4	-0.1‡	1.0	9.7	Apr	6.9	4.5	Mar	1.4	-2.8	3.0	144	0.92	3.3
Belgium	1.3	Q1	1.6	0.5	5.6	Apr	5.4	5.9	Mar	-2.6	-4.9	3.0	142	0.92	3.3
France	0.8	Q1	0.7	0.7	5.9	Apr	5.9	6.9	Mar	-1.7	-5.0	2.9	143	0.92	3.3
Germany	-0.1	Q1	0.2	0.3	7.2	Apr	6.2	2.8	Mar	4.7	-2.5	2.4	130	0.92	3.3
Greece	4.5	Q4	5.6	2.0	3.0	Apr	3.9	10.9	Mar	-8.0	-2.3	4.0	40.0	0.92	3.3
Italy	1.8	Q1	2.0	1.2	8.2	Apr	6.4	7.8	Mar	0.1	-5.0	4.2	121	0.92	3.3
Netherlands	1.9	Q1	-2.6	1.2	5.2	Apr	4.8	3.4	Apr	6.9	-2.4	2.7	139	0.92	3.3
Spain	3.8	Q1	1.9	1.8	4.1	Apr	4.1	12.8	Mar	1.0	-4.4	3.4	142	0.92	3.3
Czech Republic	0.1	Q4	0.4	-0.2	12.7	Apr	11.4	2.5	Mar‡	-1.7	-4.8	4.5	-58.0	21.9	7.2
Denmark	1.9	Q4	1.2	0.5	5.3	Apr	5.0	2.8	Mar	9.8	0.7	2.7	126	6.88	2.6
Norway	3.0	Q1	1.0	1.4	6.4	Apr	4.6	3.7	Feb‡‡	20.0	11.4	1.4	76.0	10.8	-10.3
Poland	0.8	Q4	16.5	0.9	14.7	Apr	13.1	5.3	Apr§	-1.3	-4.0	6.0	-67.0	4.17	6.0
Russia	-1.9	Q1	na	-2.2	2.3	Apr	7.3	3.5	Mar§	6.0	-4.4	10.9	42.0	80.5	-18.6
Sweden	0.3	Q1	0.8	-0.6	10.5	Apr	6.1	7.7	Mar§	3.9	-0.3	2.3	49.0	10.5	-5.2
Switzerland	0.8	Q4	0.1	1.1	2.6	Apr	2.6	1.9	Apr	7.4	-0.7	1.0	21.0	0.90	10.0
Turkey	3.5	Q4	3.8	2.8	43.7	Apr	42.2	10.2	Mar§	-4.5	-4.2	8.2	-1517	19.8	-20.3
Australia	2.7	Q4	1.9	1.6	7.0	Q1	5.5	3.7	Apr	0.8	-0.5	3.4	2.0	1.51	-5.3
Hong Kong	2.7	Q1	23.0	3.4	1.6	Mar	2.4	3.1	Mar‡‡	3.5	-1.4	3.3	35.0	7.83	0.3
India	4.4	Q4	-3.4	6.1	4.7	Apr	5.6	8.1	Apr	-1.4	-5.7	7.0	-40.0	82.4	-5.8
Indonesia	5.0	Q1	na	4.5	4.3	Apr	4.0	5.5	Q1§	0.7	-2.6	6.3	-94.0	14,865	-1.5
Malaysia	5.6	Q1	na	3.5	3.4	Mar	2.3	3.5	Mar§	3.1	-5.0	3.8	-70.0	4.52	-2.9
Pakistan	6.2	2022**	na	1.5	36.4	Apr	30.3	6.3	2021	-2.9	-5.8	15.1 †††	222	285	-31.3
Philippines	6.4	Q1	10.0	4.8	6.6	Apr	5.7	4.8	Q1§	-3.3	-6.4	5.7	-48.0	56.2	-6.7
Singapore	0.1	Q1	-2.7	0.9	5.5	Mar	5.1	1.8	Q1	18.7	-0.1	2.8	3.0	1.34	3.7
South Korea	0.9	Q1	1.1	1.5	3.7	Apr	2.8	2.8	Apr§	2.5	-2.1	3.3	3.0	1,338	-4.7
Taiwan	-3.0	Q1	-6.4	1.6	2.3	Apr	1.9	3.6	Mar	11.9	-2.2	1.2	-22.0	30.8	-3.6
Thailand	2.7	Q1	7.8	3.8	2.7	Apr	2.2	1.0	Mar§	2.1	-2.7	2.7	-48.0	34.3	0.8
Argentina	1.9	Q4	-6.0	-3.6	109	Apr	106.5	6.3	Q4§	-2.4	-4.6	na	na	232	-49.0
Brazil	1.9	Q4	-0.9	1.5	4.2	Apr	5.3	8.8	Mar§‡‡	-2.7	-7.6	11.9	-64.0	4.96	0.4
Chile	-2.3	Q4	0.2	0.3	9.9	Apr	8.1	8.8	Mar§‡‡	-4.9	-2.5	5.6	-118	799	6.4
Colombia	3.0	Q1	5.9	1.6	12.8	Apr	11.8	10.0	Mar§	-4.2	-4.4	11.0	-81.0	4,547	-11.2
Mexico	3.9	Q1	4.5	1.4	6.3	Apr	5.9	2.8	Mar	-1.0	-3.7	8.8	-11.0	17.6	13.4
Peru	1.7	Q4	-2.0	1.8	8.0	Apr	6.5	7.5	Apr§	-3.6	-1.6	7.1	-89.0	3.69	2.2
Egypt	3.9	Q4	na	3.0	30.5	Apr	25.8	7.2	Q4§	-1.8	-6.3	na	na	30.9	-40.8
Israel	3.5	Q1	2.5	2.8	5.0	Apr	4.0	3.6	Apr	4.2	-2.2	3.8	117	3.65	-8.2
Saudi Arabia	8.7	2022	na	2.0	2.7	Apr	2.2	4.8	Q4	5.0	0.6	na	na	3.75	nil
South Africa	0.9	Q4	-4.9	0.5	7.3	Mar	5.2	32.9	Q1§	-2.1	-4.7	11.1	106	19.3	-17.3

Source: Haver Analytics. *% change on previous quarter, annual rate. †The Economist Intelligence Unit estimate/forecast. §Not seasonally adjusted. ‡New series. **Year ending June. ††Latest 3 months. ‡‡3-month moving average. §§5-year yield. †††Dollar-denominated bonds.

Markets

In local currency	Index May 17th	% change on: one week	Dec 30th 2022
United States S&P 500	4,158.8	0.5	8.3
United States NAScomp	12,500.6	1.6	19.4
China Shanghai Comp	3,284.2	-1.1	6.3
China Shenzhen Comp	2,026.0	-0.2	2.5
Japan Nikkei 225	30,093.6	3.3	15.3
Japan Topix	2,133.6	2.3	12.8
Britain FTSE 100	7,723.2	-0.2	3.6
Canada S&P TSX	20,296.4	-1.0	4.7
Euro area EURO STOXX 50	4,323.2	0.4	14.0
France CAC 40	7,399.4	0.5	14.3
Germany DAX*	15,951.3	0.3	14.6
Italy FTSE/MIB	27,196.5	-0.3	14.7
Netherlands AEX	758.3	1.3	10.1
Spain IBEX 35	9,211.6	0.5	11.9
Poland WIG	63,519.2	-0.1	10.5
Russia RTS, $ terms	1,039.6	-1.2	7.1
Switzerland SMI	11,437.8	-0.1	6.6
Turkey BIST	4,661.7	3.7	-15.4
Australia All Ord.	7,389.3	-0.8	2.3
Hong Kong Hang Seng	19,560.6	-1.0	-1.1
India BSE	61,560.6	-0.6	1.2
Indonesia IDX	6,663.1	-2.2	-2.7
Malaysia KLSE	1,424.3	-0.1	-4.8

	index May 17th	% change on: one week	Dec 30th 2022
Pakistan KSE	41,835.6	1.9	3.5
Singapore STI	3,173.8	-2.1	-2.4
South Korea KOSPI	2,494.7	-0.1	11.5
Taiwan TWI	15,925.3	1.8	12.6
Thailand SET	1,522.7	-3.0	-8.7
Argentina MERV	327,788.6	5.6	62.2
Brazil BVSP*	109,459.9	1.9	-0.3
Mexico IPC	55,067.4	-0.8	13.6
Egypt EGX 30	16,844.0	-3.7	15.4
Israel TA-125	1,823.3	1.6	1.2
Saudi Arabia Tadawul	11,277.6	-0.1	6.9
South Africa JSE AS	78,390.8	0.8	7.3
World, dev'd MSCI	2,820.9	-0.1	8.4
Emerging markets MSCI	975.8	-0.4	2.0

US corporate bonds, spread over Treasuries

Basis points	latest	Dec 30th 2022
Investment grade	162	154
High-yield	512	502

Sources: Refinitiv Datastream; Standard & Poor's Global Fixed Income Research. *Total return index.

Commodities

The Economist commodity-price index

2015=100	May 9th	May 16th*	% change on month	year
Dollar Index				
All Items	149.0	145.2	-7.2	-19.5
Food	139.2	137.1	-4.8	-17.8
Industrials				
All	158.2	152.7	-9.2	-20.9
Non-food agriculturals	110.8	107.0	-9.8	-41.2
Metals	172.3	166.3	-9.0	-15.3
Sterling Index				
All items	180.3	177.3	-7.7	-19.7
Euro Index				
All items	150.9	148.2	-6.4	-22.0
Gold				
$ per oz	2,026.1	1,999.2	-0.5	9.7
Brent				
$ per barrel	77.5	75.0	-11.6	-33.2

Sources: Bloomberg; CME Group; Cotlook; Refinitiv Datastream; Fastmarkets; FT; ICCO; ICO; ISO; Live Rice Index; LME; NZ Wool Services; Thompson Lloyd & Ewart; Urner Barry; WSJ. *Provisional.

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Tuckered out

Sacking Tucker Carlson has put a dent in Fox News's prime-time ratings

After Fox News fired Tucker Carlson—the top-rated host on America's top-rated cable-news channel—on April 24th, pundits minimised the political impact of his exit. If viewers wanted more stories on his favourite topics, like crimes committed by immigrants or defending rioters who stormed the Capitol in 2021, the network could find someone new to deliver them.

Yet so far, Mr Carlson's audience has spurned the rotating cast of hosts in his 8pm slot. According to Nielsen, a research firm, viewership fell from 3m during his final week to 1.5m the following week. It has been flat since then. Sean Hannity, whose show followed Mr Carlson's, has also lost a quarter of his audience. The biggest beneficiary has been Newsmax, a channel even further right than Fox, whose viewership at 8pm rose from 150,000 to nearly 500,000.

However, that leaves 1.15m people who have stopped watching cable news at 8pm. Could a reduced intake of right-wing media affect their opinions? According to a recent study by David Broockman and Joshua Kalla, just 32% of regular Fox viewers are "strong" Republicans, a group likely to vote for the party no matter what. In contrast, 31% were "weak" or "leaning" Republicans, and 36% were independents or Democrats.

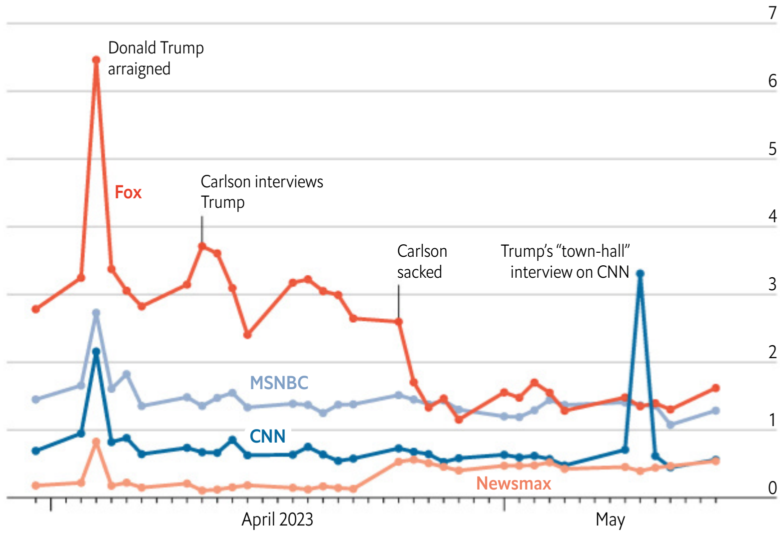
The authors also found that Fox's audience was open to persuasion. They randomly chose some Fox viewers to get paid to watch CNN, a more liberal channel, for a month. Compared with study participants who did not switch, this group was more likely to hold views aired on CNN, like covid-19 causing long-term health problems, and less likely to hold those stated on Fox, such as protests being likely to get more violent if Joe Biden became president.

Mr Carlson's exit will probably have a smaller impact. Some viewers will tune in to the new show he plans to launch on Twitter. Moreover, ratings for both CNN and left-leaning MSNBC have been flat, suggesting that his fans are still not being exposed to liberal views. And just like Fox's ratings recovered after Bill O'Reilly, Mr Carlson's predecessor in the 8pm slot, was fired in 2017, whoever succeeds Mr Carlson could build up a new following as well.

Nonetheless, presidential primaries are looming, and the next host may back a Republican not named Trump. For now, the loss of Mr Carlson's nativist, divisive populism has led 1.15m people to abandon conservative cable news in prime time. ■

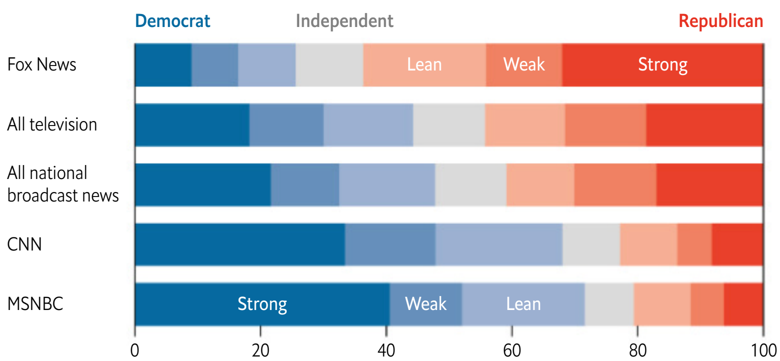
→ Viewers have fled from Fox News in Tucker Carlson's former timeslot

Viewers of the 8pm weekday slot, m



→ Fox viewers skew to the right—but most are not committed Republicans

Share of total audience, %
Who watch at least eight hours per month



→ Fox News viewers' opinions change when they switch channels

Average response, 1=agree, 0=disagree or no opinion
Fox News viewers, August 31st-September 25th 2020



Sources: Nielsen; mediaite.com; "Selective exposure and partisan echo chambers in television news consumption", by D.E. Broockman and J.L. Kalla, working paper; "Consuming cross-cutting media causes learning and moderates attitudes", by D.E. Broockman and J.L. Kalla, working paper



The long take

Pema Tseden, founder and inspirer of Tibetan cinema, died on May 8th, aged 53

For 15 minutes, in a film called "Jinpa" made in 2018, a man drives a truck across a Tibetan plateau. He has dishevelled hair, a moustache and glasses; his truck has a picture of a lama on the windscreen and decorations on the cab roof. But the camera is not interested in him or in his vehicle. Its eye is on the immense landscape around him. In "Tharlo", a film made three years earlier, the lens rests for 12 minutes on an elderly shepherd among his sheep. He is tiny; the hills are huge. Viewers are not asked to engage first with this character, but with the place.

This, Pema Tseden would explain, was Tibetans' way of looking. They would often gaze steadily, and for a long time, at clouds, peaks, bowls or leaves. He himself, as a student, would sit at the back of the class to contemplate a drop of water, or the view from the window. When he went into film-making, driven by his childhood passion for the films he had seen on outdoor screens in his remote mountain village, he carried with him the technique of the long, unmoving take. It was the rhythm of Tibetan life.

That life had not been truly represented in cinema before. In Western or Chinese films about Tibet almost everything, clothes, manners, language, even thinking, was inaccurate. He set out to change that. His feature films—seven of them, with two more in post-production—were exclusively in the Tibetan language, shot on location there (often round his home region of Guide, in Qinghai province) and almost entirely with amateur Tibetan actors. They showed neither a mystery-land of fairy-tale splendour, as the West believed, nor barbarous peasants, as the Han Chinese occupiers thought, but building sites, boomtowns, cluttered kitchens, decaying temples and pasturelands bisected by barbed wire.

In this landscape people faced everyday problems: protecting their herds, finding actors for a village opera, dealing with an unwanted pregnancy, or merely getting from town to town in shaky vans or on battered motorbikes. At every turn, ancient tradition collided with modern ways. In "The Silent Holy Stones" a ten-year-old trainee monk, on a visit home, became obsessed with a TV series called "Journey to the West" and tried to take a videoplayer and monitor back to the monastery to show his teacher. In that case, the quiet Tibetan gaze was fixed on a flickering small screen.

The stories were simple. So too was the screenwriting, since he was also a writer of novels and short stories, which fed into his work. Making the films, though, was difficult. Because Tibet had no cinema industry, it had no cinematographers, sound recordists, set designers or screen actors. As the first Tibetan to graduate from the Beijing Film Academy, he took it upon himself to persuade his cinema-loving Tibetan friends to go there too and train in the skills he needed. Later, they themselves became directors. They also put up money for his first films, since Tibet provided no other source. Some funding, however, came from China.

That touched on his second problem. Since 1951 Han Chinese had been in charge in Tibet, and their presence and power were increasing. His writing he could pursue by himself, but if he wanted to be a film director he had to work with the Chinese state. He did not object to this fundamentally. The very films that had drawn him to cinema had been Chinese comedies and B-movies. He was fluent in Chinese, and had graduated as a translator; he also wrote in it, finding it made him think in an interestingly different way. At the Beijing Film Academy he devoured both the teaching and the library, where he watched a host of classic films he, and Tibet, had never seen. Freedom, he felt, was a relative concept.

He therefore did not mind working within the official censorship system. Uncomplainingly he sent his scripts for review, and some were rejected. That taught him which topics to avoid. In general, he got round the censors with exceptional subtlety. The Chinese presence in Tibet was almost invisible in his films: a shop sign here, a TV news bulletin there. His themes might touch on national directives—the need to have an ID card, the one-child policy—but with no open criticism. A sharper culture-clash came in "Old Dog", in which a herdsman refused to sell his mastiff, a breed much sought-after in China, to a Chinese businessman, because of a Tibetan tradition that animals should not be commodified. Even there, his son took the businessman's side.

Subtlety was called for in his public statements, too. In interviews, specially in the West, he kept his answers short and careful. Since he was quiet by nature, a slim, calm figure, this political astuteness hardly showed. He never initiated topics, and in group discussions a stray remark might often make him lose himself in thought. Silence was a good insurance policy.

It was also something long engrained in him. His parents had been nomadic herdsmen, and his happiest childhood memories were of his grandfather, a monk, who had brought him up. After school he was made to copy out Buddhist scriptures, learning both his written language and his spiritual culture. Several of his films explored Buddhist teachings on compassion, life, death and time, asking especially how far compassion should go. As far as the king Drime Kunden in the traditional New Year village opera, the theme of "The Search", who gave away his wife and even his eyes to those who needed them more?

The teaching that permeated his films was impermanence. Earthly life was brief. Everything would disappear. This made him pessimistic, but also resigned to death, after which came the afterlife. His WeChat avatar was a single eye, the third eye, which opened into wisdom. True wisdom was to see the self, as Drime Kunden did, from the viewpoint of an outside observer.

That was the key. As a boy he would regularly herd sheep in the high pastures, sitting silently among them. Sheep were omnipresent in his films. He felt great loneliness there, but also the detachment that became so necessary later. By detaching himself, he could work happily within Chinese constraints. And he would rest his camera's gaze less on fleeting human faces than on the vast Tibetan landscape before him, beyond argument, the long take. ■

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